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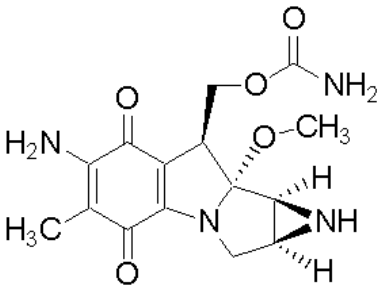
Product Information

Mitomycin C
from *Streptomyces caespitosus*

Catalog Number **M0503 and M4287**
Storage Temperature 2–8 °C

CAS RN 50-07-7
Synonyms: Ametycine; Mutamycin; MMC; Mitocin-C

Product Description



Molecular formula: $C_{15}H_{18}N_4O_5$
Molecular Weight: 334.33
pK_a values:[1] 3.2, 6.5

E^{mM}(367 nm) = 21.84 (water)
E^{mM}(357 nm) = 22.78 (methanol)[1]
$E^{1\%}$(216 nm) = 742 (methanol)
$E^{1\%}$(360 nm) = 742 (methanol)
$E^{1\%}$(560 nm) = 0.06 (methanol)[2]

Mitomycin C is produced by a strain of actinomyces, *Streptomyces caespitosus*. Mitomycin C contains three anticancer moieties, quinone, urethane, and aziridine groups.[3]

Mitomycin C is the most widely used of the Mitomycin antibiotics because it is the least toxic and with the most potent antitumor activity. It has extraordinarily strong activity against Ehrlich ascites tumor cells.[4] It also possesses strong bactericidal action against Gram-positive and Gram-negative organisms.[5]

Mitomycin C inhibits DNA synthesis. It reacts covalently with DNA, *in vivo* and *in vitro*, forming crosslinks between the complementary strands of DNA. This interaction prevents the separation of the complementary DNA strands, thus inhibiting DNA replication. Mitomycin C is one of the few antibiotics known to interact with DNA in this fashion.[6,7]

These products are supplied in vials containing 50 mg of powder, of which 2 mg is Mitomycin C and 48 mg is sodium chloride.

Catalog Number M4287 is cell culture tested and the recommended concentration for eukaryote cell culture use is 10–50 µg/mL.[8]

Preparation Instructions

Mitomycin C is soluble in water (0.5 mg/mL).

A 0.5% solution in water has a pH of 6.0–7.5.[9] A saturated solution has a pH of 5.0–9.0.[3]

Mitomycin C undergoes rapid degradation in acidic solutions (pH <6.0).[10] It is most likely to retain activity in aqueous solutions at pH 6–9. There are conflicting data regarding the length of time to which it can be stored before degradation occurs.

Generally, solutions at pH 6–9 can be stored at 0–5 °C for up to a week. If a precipitate forms, a fresh solution should be prepared. The precipitated solution has proven to be toxic to cells. Stock solutions should also be stored in the dark since it is readily decomposed by light.

A study has shown that the amount of Mitomycin C in a culture medium (at 38 °C) containing antibiotics with fetal calf serum was reduced by 29% after 30 minutes and by 53% after 60 minutes.[11]

Storage/Stability

Store the product at 2–8 °C.

References

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9. *Martindale: The Extra Pharmacopoeia*, 30th ed., 493 (1993).
10. Beijnen, J.H., and Underberg, W.J.M., International J. of Pharmaceutics, **24**, 219-229 (1985).
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