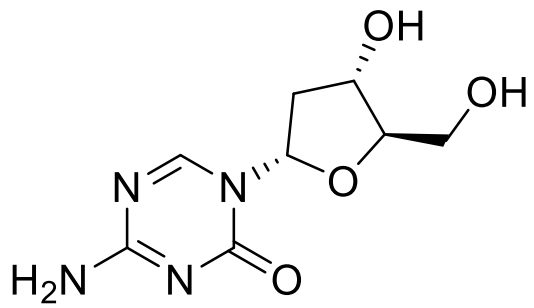
Product data sheet

MedKoo Cat#: 100250 Name: Decitabine CAS#: 2353-33-5 Chemical Formula: $C_8H_{12}N_4O_4$ Exact Mass: 228.08585 Molecular Weight: 228.2	
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:
Decitabine is a cytidine antimetabolite analogue with potential antineoplastic activity. Decitabine incorporates into DNA and inhibits DNA methyltransferase, resulting in hypomethylation of DNA and intra-S-phase arrest of DNA replication.

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	45	197.19
Water	18	78.87

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.3819 mL	21.9096 mL	43.8193 mL
5 mM	0.8764 mL	4.3819 mL	8.7639 mL
10 mM	0.4382 mL	2.1910 mL	4.3819 mL
50 mM	0.0876 mL	0.4382 mL	0.8764 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. Nakamura M, Nishikawa J, Saito M, Sakai K, Sasaki S, Hashimoto S, Okamoto T, Suehiro Y, Yamasaki T, Sakaida I. Decitabine inhibits tumor cell proliferation and up-regulates e-cadherin expression in Epstein-Barr virus-associated gastric cancer. J Med Virol. 2017 Mar;89(3):508-517. doi: 10.1002/jmv.24634. Epub 2016 Nov 17. PMID: 27430892.

2. Requena CE, Pérez-Moreno G, Horváth A, Vértessy BG, Ruiz-Pérez LM, González-Pacanowska D, Vidal AE. The nucleotidohydrolases DCTPP1 and dUTPase are involved in the cellular response to decitabine. Biochem J. 2016 Sep 1;473(17):2635-43. doi: 10.1042/BCJ20160302. Epub 2016 Jun 20. PMID: 27325794.

In vivo study

1. Wang LX, Mei ZY, Zhou JH, Yao YS, Li YH, Xu YH, Li JX, Gao XN, Zhou MH, Jiang MM, Gao L, Ding Y, Lu XC, Shi JL, Luo XF, Wang J, Wang LL, Qu C, Bai XF, Yu L. Low dose decitabine treatment induces CD80 expression in cancer cells and stimulates tumor specific cytotoxic T lymphocyte responses. PLoS One. 2013 May 9;8(5):e62924. doi: 10.1371/journal.pone.0062924. PMID: 23671644; PMCID: PMC3650049.

7. Bioactivity
Biological target:

Product data sheet

Decitabine (NSC 127716) is an orally active deoxycytidine analogue antimetabolite and a DNA methyltransferase inhibitor.

In vitro activity

Decitabine inhibited cell growth and induced G2/M arrest and apoptosis in EBVaGC cell lines. The expression of E-cadherin was up-regulated and cell motility was significantly inhibited in the cells treated with decitabine. The promoter regions of p73 and RUNX3 were demethylated, and their expression was up-regulated by decitabine. They enhanced the transcription of p21, which induced G2/M arrest and apoptosis through down-regulation of c-Myc. Decitabine also induced the expression of BZLF1 in SNU719. Induction of EBV lytic infection was an alternative way to cause apoptosis of the host cells.

Reference: J Med Virol. 2017 Mar;89(3):508-517. https://onlinelibrary.wiley.com/doi/abs/10.1002/jmv.24634

In vivo activity

Decitabine (DAC), a DNA methylation inhibitor that is currently used for the treatment of myelodysplastic syndrome (MDS), acute myeloid leukemia (AML) and other malignant neoplasms, is capable of eliciting an anti-tumor cytotoxic T lymphocyte (CTL) response in mouse EL4 tumor model. C57BL/6 mice with established EL4 tumors were treated with DAC (1.0 mg/kg body weight) once daily for 5 days. DAC treatment resulted in infiltration of IFN-γ producing T lymphocytes into tumors and caused tumor rejection. Depletion of CD8(+), but not CD4(+) T cells resumed tumor growth. DAC-induced CTL response appeared to be elicited by the induction of CD80 expression on tumor cells. Epigenetic evidence suggests that DAC induces CD80 expression in EL4 cells via demethylation of CpG dinucleotide sites in the promoter of CD80 gene. In addition, we also showed that a transient, low-dose DAC treatment can induce CD80 gene expression in a variety of human cancer cells.

Reference: PLoS One. 2013 May 9;8(5):e62924. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3650049/