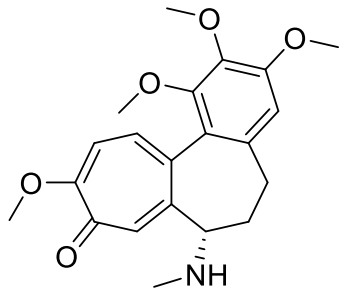
Product data sheet

MedKoo Cat#: 540102 Name: Demecolcine CAS#: 477-30-5 Chemical Formula: $C_{21}H_{25}NO_5$ Exact Mass: 371.1733 Molecular Weight: 371.43	
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:
Demecolcine, also known as Colcemid, is a microtubule polymerization inhibitor used to study embryonic cloning. It forces ejection of the nucleus.

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	25.00	67.31

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.69 mL	13.46 mL	26.92 mL
5 mM	0.54 mL	2.69 mL	5.38 mL
10 mM	0.27 mL	1.35 mL	2.69 mL
50 mM	0.05 mL	0.27 mL	0.54 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. Li S, Kang JD, Jin JX, Hong Y, Zhu HY, Jin L, Gao QS, Yan CG, Cui CD, Li WX, Yin XJ. Effect of demecolcine-assisted enucleation on the MPF level and cyclin B1 distribution in porcine oocytes. PLoS One. 2014 Mar 13;9(3):e91483. doi: 10.1371/journal.pone.0091483. PMID: 24626152; PMCID: PMC3953396.
2. Fujikawa-Yamamoto K, Teraoka K, Zong ZP, Yamagishi H, Odashima S. Apoptosis by demecolcine in V79 cells. Cell Struct Funct. 1994 Dec;19(6):391-6. doi: 10.1247/csf.19.391. PMID: 7720099.

In vivo study

1. Li GP, White KL, Aston KI, Bunch TD, Hicks B, Liu Y, Sessions BR. Colcemid-treatment of heifer oocytes enhances nuclear transfer embryonic development, establishment of pregnancy and development to term. Mol Reprod Dev. 2009 Jul;76(7):620-8. doi: 10.1002/mrd.21004. PMID: 19170231.
2. Bunn PA Jr, Shackney SE, Ford SS. The effects of colcemid on hematopoiesis in the mouse. J Clin Invest. 1976 Nov;58(5):1280-5. doi: 10.1172/JCI108583. PMID: 993346; PMCID: PMC333298.

7. Bioactivity
Biological target:

Colcemid (Demecolcine), a derivative of colchicine, is a potent mitotic inhibitor that binds to the protein tubulin and arrest cells in metaphase for karyotyping assays.

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In vitro activity

The level of MPF and the distribution of cyclin B1 were assessed in porcine oocytes following DEM (demecolcine) treatment. MPF was uniformly distributed in oocytes that had been treated with 0.4 μg/ml DEM for 1 h. Immunofluorescence microscopy showed that in untreated oocytes, cyclin B1, the regulatory subunit of MPF, accumulated around the spindle, and was lowly detected in the cytoplasm. DEM treatment disrupted spindle microtubules, induced chromosome condensation, and reduced the level of cyclin B1 in the nuclear region. Cyclin B1 was uniformly distributed in DEM-treated oocytes and the level of MPF was increased.

Reference: PLoS One. 2014 Mar 13;9(3):e91483. https://pubmed.ncbi.nlm.nih.gov/24626152/

In vivo activity

Mice were given Colcemid intraperitoneally (i.p.) according to the following schecules: Group I, 2 mg/kg i.p., single injection; Group II, 14 mg/kg i.p., single injection; Group III, 2 mg/kg i.p. q.2h. x 4; Group IV, 2 mg/kg i.p. q.2h. x 7. In Group I (Colcemid 2 mg/kg, single injection), the number of megakaryocytes/mm2 changed little during the first 8 h (Fig. 1A). A sharp rise in megakaryocytes/mm2 occurred between 8 and 12 h. This increase in megakaryocytes persisted through day four, (66% above control maximum). On comparing the effects of Colcemid on Groups I and IV the rise in megakaryocytes can be resolved into early and late components (Figs. 1A and 1B). The early component of the rise (8-48 h) was most apparent in Group I and was blunted in Group IV. The late component (days 3 and 4) was more pronounced in Group IV. A fall in marrow cellularity was observed in both Groups I and IV, beginning with the 4-h time point, and reaching a nadir at 24 h. In Groups I and II an increase in peripheral platelet count was apparent between 12 and 24 h (Fig. 2A and B). The maximum increase was observed on day 6. In contrast, peripheral leukocyte counts fell on all the Colcemid schedules employed (Fig. 3).

Reference: J Clin Invest. 1976 Nov;58(5):1280-5. https://pubmed.ncbi.nlm.nih.gov/993346/