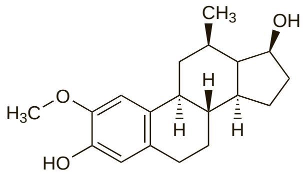
2-Methoxyoestradiol

2-ME2; 2-Methoxyestradiol; NSC-659853. (17β)-2-Methoxyestra-1,3,5(10)-triene-3,17-diol.

$C_{19}H_{26}O_3$ = 302.4.

CAS — 362-07-2.



Profile

2-Methoxyoestradiol is a metabolite of oestradiol (p.2097). It does not exhibit direct oestrogenic activity, but works through multiple cellular pathways to produce antineoplastic effects, including inhibition of angiogenesis and induction of apoptosis. 2-Methoxyoestradiol is under investigation in the treatment of various diseases, including glioblastoma, multiple myeloma, carcinoid tumours, as well as ovarian, prostate, breast, and renal cell cancers. It is also under investigation for pulmonary arterial hypertension.

Mifamurtide *(rINN)*

Mifamurtida; Mifamurtidum; MTP-PE; Muramyl Tripeptide Phosphatidyl Ethanolamine; Muramyl Tripeptide Phosphatidyl Monoethanolamine. 2-[(*N*-{(2*R*)-[(2-Acetamido-2,3-dideoxy-D-glucopyranos-3-yl)oxy]propanoyl}-L-alanyl-D-isoglutaminyl-L-alanyl)-amino]ethyl (2*R*)-2,3-bis(hexadecanoyloxy)propyl hydrogen phosphate.

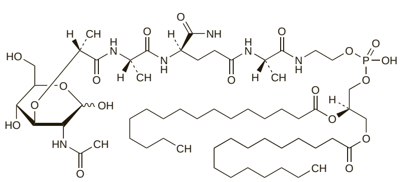
Мифамуртид

$C_{59}H_{109}N_6O_{19}P$ = 1237.5.

CAS — 83461-56-7.

ATC — L03AX15.

ATC Vet — QL03AX15.



NOTE. The name Mifamurtide has been used for both the base and the sodium salt.

Mifamurtide Sodium *(rINNM)*

CGP-19835A; L-MTP-PE (liposomal mifamurtide sodium); Mifamurtida sódica; Mifamurtide *(USAN)*; Mifamurtide Sodique; Mifamurtidum Natricum. 2-[(*N*-{(2*R*)-2-[(3*R*,4*R*,5*S*,6*R*)-3-(Acetylamino)-2,5-dihydroxy-6-(hydroxymethyl)tetrahydro-2*H*-pyran-4-yloxy]propanoyl}-L-alanyl-D-isoglutaminyl-L-alanyl)amino]ethyl (2*R*)-2,3-bis(hexanoyloxy)propyl sodium phosphate hydrate.

Мифамуртид Натрий

$C_{59}H_{108}N_6NaO_{19}P,xH_2O$.

CAS — 838853-48-8.

NOTE. The name Mifamurtide has been used for both the base and the sodium salt.

Profile

Mifamurtide is an immunomodulator that activates macrophages to increase their capacity to destroy cancer cells. It is under investigation for the treatment of osteosarcoma.

Miltefosine *(BAN, rINN)*

D-18506; HDPC; Hexadecylphosphocholine; Miltefosiini; Miltefosin; Miltefosina; Miltéfosine; Miltefosinum. [2-(Trimethylammonio)ethyl][hexadecyloxyphosphonate].

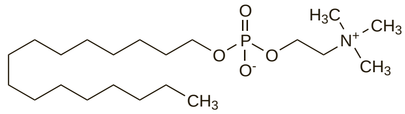
Мильтефозин

$C_{21}H_{46}NO_4P$ = 407.6.

CAS — 58066-85-6.

ATC — L01XX09.

ATC Vet — QL01XX09.



Profile

Miltefosine is a phospholipid derivative which is structurally related to the phospholipid components of the cell membrane and is thought to exert its antineoplastic actions by disruption of cell-membrane function. A 6% solution is applied once or twice daily as a topical antineoplastic agent for skin metastases of breast cancer. Miltefosine has also been tried orally for various malignant neoplasms. It is used for the treatment of visceral and cutaneous leishmaniasis in an oral dose of 1.5 to 2.5 mg/kg daily (maximum daily dose 150 mg) for 28 days.

Leishmaniasis. Miltefosine, given orally in doses of 50 to 150 mg daily, or about 2.5 mg/kg daily, for 28 days, appears to be of benefit[1-7] in the treatment of visceral leishmaniasis (p.824), and has been licensed for this purpose in India and Germany. Benefit has also been reported in patients given similar doses for New World cutaneous leishmaniasis,[8] and it has also been licensed in some South American countries, but success may depend on the infecting *Leishmania* species.[9] The use of longer courses of miltefosine in the treatment of patients with both leishmaniasis and HIV infection has been reported.[10]

1. Sundar S, *et al.* Trial of oral miltefosine for visceral leishmaniasis. *Lancet* 1998; **352:** 1821–3.
2. Jha TK, *et al.* Miltefosine, an oral agent, for the treatment of Indian visceral leishmaniasis. *N Engl J Med* 1999; **341:** 1795–1800.
3. Thakur CP, *et al.* Miltefosine in a case of visceral leishmaniasis with HIV co-infection; and rising incidence of this disease in India. *Trans R Soc Trop Med Hyg* 2000; **94:** 696–7.
4. Sundar S, *et al.* Short-course of oral miltefosine for treatment of visceral leishmaniasis. *Clin Infect Dis* 2000; **31:** 1110–13.
5. Sundar S, *et al.* Oral miltefosine for Indian visceral leishmaniasis. *N Engl J Med* 2002; **347:** 1739–46.
6. Bhattacharya SK, *et al.* Efficacy and tolerability of miltefosine for childhood visceral leishmaniasis in India. *Clin Infect Dis* 2004; **38:** 217–21.
7. Ritmeijer K, *et al.* A comparison of miltefosine and sodium stibogluconate for treatment of visceral leishmaniasis in an Ethiopian population with high prevalence of HIV infection. *Clin Infect Dis* 2006; **43:** 357–64.
8. Soto J, *et al.* Treatment of American cutaneous leishmaniasis with miltefosine, an oral agent. *Clin Infect Dis* 2001; **33:** e57–e61. Available at: http://www.journals.uchicago.edu/doi/pdf/10.1086/322689 (accessed 01/08/08)
9. Soto J, *et al.* Miltefosine for new world cutaneous leishmaniasis. *Clin Infect Dis* 2004; **38:** 1266–72.
10. Sindermann H, *et al.* Oral miltefosine for leishmaniasis in immunocompromised patients: compassionate use in 39 patients with HIV infection. *Clin Infect Dis* 2004; **39:** 1520–3.

Malignant neoplasms. References to the use of topical miltefosine in breast cancer.

1. Terwogt JM, *et al.* Phase II trial of topically applied miltefosine solution in patients with skin-metastasized breast cancer. *Br J Cancer* 1999; **79:** 1158–61.
2. Smorenburg CH, *et al.* Phase II study of miltefosine 6% solution as topical treatment of skin metastases in breast cancer patients. *Anticancer Drugs* 2000; **11:** 825–8.
3. Leonard R, *et al.* Randomized, double-blind, placebo-controlled, multicenter trial of 6% miltefosine solution, a topical chemotherapy in cutaneous metastases from breast cancer. *J Clin Oncol* 2001; **19:** 4150–9.

Preparations

Proprietary Preparations (details are given in Part 3)
Arg.: Miltex†; ***Austria:*** Miltex; ***Braz.:*** Miltex; ***Chile:*** Miltex†; ***Cz.:*** Miltex†; ***Fin.:*** Miltex†; ***Fr.:*** Miltex; ***Ger.:*** Impavido; Miltex; ***Hung.:*** Miltex; ***Israel:*** Miltex; ***Ital.:*** Miltex; ***Malaysia:*** Miltex†; ***Philipp.:*** Miltex; ***Singapore:*** Miltex; ***Spain:*** Miltex; ***Swed.:*** Miltex; ***UK:*** Miltex.

Mitobronitol *(BAN, rINN)*

DBM; Dibromomannitol; Mitobronitolum; NSC-94100; R-54; WR-220057. 1,6-Dibromo-1,6-dideoxy-D-mannitol.

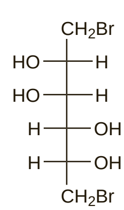
Митобронитол

$C_6H_{12}Br_2O_4$ = 308.0.

CAS — 488-41-5.

ATC — L01AX01.

ATC Vet — QL01AX01.



Pharmacopoeias. In *Br.*

BP 2008 (Mitobronitol). A white or almost white crystalline solid. Slightly soluble in water, in alcohol, and in acetone; practically insoluble in chloroform. Protect from light.

Profile

Mitobronitol is an antineoplastic which appears to act as an alkylating agent, perhaps by epoxide formation. It has been used in the management of thrombocythaemia, both primary, and secondary to chronic myeloid leukaemia or polycythaemia vera.

The usual oral dose is 250 mg daily until the platelet count falls to acceptable levels. Intermittent dosage has been given for maintenance therapy, adjusted according to the blood count. Frequent examination of the blood should be performed during treatment.

Mitobronitol is well absorbed from the gastrointestinal tract and is excreted through the liver into the bile, with reabsorption from the small intestine. It is eliminated as unchanged drug and some bromine-containing metabolites in the urine over several days.

Carcinogenicity. Long-term follow-up of a cooperative study[1] involving 350 patients with polycythaemia vera and treated with mitobronitol was thought to indicate that mitobronitol was less likely than phosphorus-32 or busulfan to induce acute myeloid leukaemia.

For a discussion of the usual management of polycythaemia vera, see p.654.

1. Kelemen E, *et al.* Decreasing risk of leukaemia during prolonged follow-up after mitobronitol therapy for polycythaemia vera. *Lancet* 1987; **ii:** 625.

Preparations

BP 2008: Mitobronitol Tablets.

Proprietary Preparations (details are given in Part 3)
Austria: Myelobromol; ***UK:*** Myelobromol.

Mitoguazone Dihydrochloride *(rINNM)*

Dihidrocloruro de mitoguazona; Methyl-GAG; Methylglyoxal Bisguanylhydrazone (mitoguazone); MGBG; Mitoguazone, Dichlorhydrate de; Mitoguazoni Dihydrochloridum; NSC-32946. 1,1′-[(Methylethanediylidene)dinitrilo]diguanidine dihydrochloride.

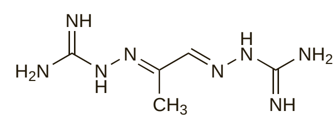
Митогуазона Дигидрохлорид

$C_5H_{12}N_8,2HCl$ = 257.1.

CAS — 459-86-9 (mitoguazone); 7059-23-6 (mitoguazone dihydrochloride).

ATC — L01XX16.

ATC Vet — QL01XX16.



(mitoguazone)

Profile

Mitoguazone is an antineoplastic that may exert its cytotoxic effects by its ability to inhibit polyamine biosynthesis. It has been tried as the dihydrochloride monohydrate or the acetate, in the treatment of leukaemias, lymphomas, and some solid tumours.

Mitoguazone may produce hypoglycaemia and should be given dissolved in glucose-containing infusion fluids; sugar may be taken orally if hypoglycaemia develops during infusion. Granulocytopenia and thrombocytopenia are generally mild and reversible on stopping treatment. Gastrointestinal effects frequently occur.

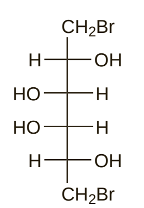
Mitolactol *(rINN)*

DBD; Dibromodulcitol; Mitolactolum; NSC-104800; WR-138743. 1,6-Dibromo-1,6-dideoxy-D-galactitol.

Митолактол

$C_6H_{12}Br_2O_4$ = 308.0.

CAS — 10318-26-0.



Profile

Mitolactol is an antineoplastic that may act by alkylation, probably as epoxide metabolites including dianhydrogalactitol. It has been given orally in the treatment of metastatic breast and cervi-