

ANTI-NEOPLASTIC AGENTS

Cancer is a disease characterised by abnormal and uncontrolled cell division attacking the surrounding tissues and organs, and also the distant body parts by circulating with blood and lymph.

Antineoplastic drugs are medications used to treat cancer. Other names for antineoplastic drugs are anticancer, chemotherapy, chemo, cytotoxic agents.

CLASSIFICATION:

Alkylating agents:

- Cyclophosphamide
- Busulfan

Antimetabolites:

- Methotrexate
- Mercaptopurine
- Fluorouracil

Natural products:

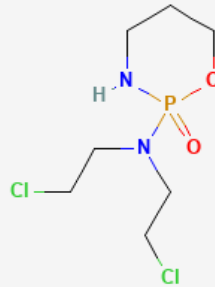
- Vinblastine

Antibiotics:

- Doxorubicin
- Dactinomycin

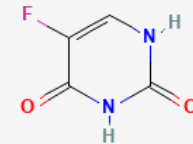
Hormone:

CYCLOPHOSPHAMIDE



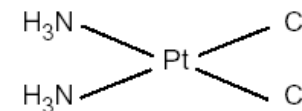
**2-[bis(2-chloroethyl) amino]
1,3,2-oxazaphosphinan-2-one**

FLUOROURACIL



**5-Fluoro-1H,
3H-pyrimidine-2,4-dione**

CISPLATIN



Diamine dichloro platinum

- Dromostanolone

Miscellaneous:

- Cisplatin

DRUG	MECHANISM OF ACTION	USES	STORAGE CONDITIONS	TYPES OF FORMULATIONS	BRAND NAMES
Cyclophosphamide Alkylating agent Nitrogen mustard Cell cycle non specific cytotoxic agent	Hepatic Cytochrome P-450 enzyme activates the drug to make it cytotoxic. It alkylates DNA and forms crosslinks between DNA strands. Thus, it interferes with DNA replication and transcription.	Malignant lymphomas, multiple myeloma, leukaemia, mycosis, neuroblastoma, adrenocarcinoma of ovary, retinoblastoma and carcinoma of breast. Immunosuppressive agent.	Vials <25°C	Injection Powder for solution	Procytox
Busulfan Alkylating agent Alkyl sulfonate derivative Cell cycle non specific cytotoxic agent	Interacts with thiol groups of proteins and nucleic acids and forms DNA-protein and DNA-DNA cross-links. These cross-links prevent the synthesis and function of DNA.	Chronic and Acute myeloid leukemia Non-malignant diseases.	Vials: 2 to 8°C	Tablet Solution	Busulfex Myleran

<p>Mercaptopurine Antimetabolite Purine antagonist</p>	<p>Competes with hypoxanthine and guanine for hypoxanthine-guanine phosphoribosyl transferase (HGPRase) and converts into thioinosinic acid (TIMP) TIMP undergoes methylation to form 6-methyl thio inosinate (MTIMP) TIMP & MTIMP block glutamine 5-phospho ribosyl pyrophosphate amido transferase and inhibits purine ribonucleotide synthesis.</p>	<p>Maintenance therapy of acute lymphatic leukaemia</p>	<p>Room temperature After opening: upto 6 weeks</p>	<p>Tablet Suspension</p>	<p>Purixan</p>
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Fluorouracil Antimetabolite Pyrimidine antagonist	Covalently binds with Thymidylate synthase and prevents the formation of thymidylate from uracil Thus inhibiting DNA and RNA synthesis & ultimately causing cell death.	Lymphocytic leukaemia, crohn's disease, ulcerative colitis.	4-35°C	Injections Solutions	Fluoroplex Efudex
Methotrexate Antimetabolite Folate antagonist	Inhibits the formation of tetrahydro folate dehydrogenase which is required for the synthesis of thymidylate and prevents the formation of DNA, RNA and proteins.	Acute lymphatic leukaemia Choriocarcinoma Burkitt lymphoma Breast cancer Head and neck carcinomas	15-25°C Vials: 2 to 8°C for 4 weeks After punctured: 30 days	Injectable solution Powder for injection	Trexall Xatmep
Dactinomycin Antibiotic Isolated from Streptomyces parvulus	Binds with DNA and blocks RNA transcription. This impaired mRNA production also declines protein synthesis	Wilm's tumour Childhood rhabdomyosarcoma Ewing's sarcoma Metastatic cancer Non seminomatous testicular cancer	20-25°C	Powder for injection	Cosmegen
Doxorubicin Antibiotic Anthracycline derivative Obtained from Streptomyces peucetius	Intercalation into DNA and disruption of topo isomerase II mediated DNA repair.	Acute lymphoblastic leukaemia Acute myeloblastic leukaemia Wilm's tumour Neuroblastoma	2 to 8°C	Powder for injection Solution	Adriamycin Rubex

<p>Vinblastine Natural alkaloid Obtained from Catharanthus roseus</p>	<p>Interacts with tubulin and inhibits mitosis at metaphase</p>	<p>Breast cancer Testicular cancer Lymphomas Neuroblastoma Hodgkin's lymphomas Non-Hodgkin's lymphomas Mycosis fungoides Histiocytosis Kaposi's sarcoma</p>	<p>2 to 8°C</p>	<p>Injection for Solution Powder</p>	<p>Velban</p>
<p>Cisplatin Platinum based chemotherapy drug</p>	<p>Binds to DNA and interfere with its repair mechanism, thus ultimately causing cell death.</p>	<p>Metastatic testicular tumours Metastatic ovarian tumours Advanced bladder cancer</p>	<p>15 to 25°C</p>	<p>Injection Solution</p>	<p>Platinol</p>
<p>Dromostanolone Synthetic androgen/ male hormone</p>	<p>Binds to androgen receptors which allows it to interact with cell components involved in protein synthesis Reduction/ competitive inhibition of prolactin/ oestrogen receptors or production</p>	<p>Breast cancer in women</p>	<p>Short term: 0 to 4°C Long term: -20°C</p>	<p>Injection Solution</p>	<p>Drolban Masteril</p>