

**Drug Spotlight 17-2** *Mustargen (mechlorethamine hydrochloride)*

<b>Definition and history</b>	Commonly known as nitrogen mustard; one of the first chemotherapeutic agents; some originally produced as chemical weapons in the early part of the 20th century; these agents blister the skin
<b>Indications</b>	Used to treat cancers such as Hodgkin's disease and some blood and lung cancers
<b>Adverse Reactions/ Side Effects</b>	These most common side effects are temporary: <ul style="list-style-type: none"> <li>• Nausea and vomiting</li> <li>• Hair loss</li> <li>• Mouth sores</li> <li>• Discoloration of infusion veins</li> </ul> Infertility may be permanent
<b>Route of administration</b>	Given via IV route; very damaging to tissue, thus given with extreme care
<b>Special considerations</b>	No antidote exists for this drug, which is considered a poison; if exposed: <ul style="list-style-type: none"> <li>• Contact poison control</li> <li>• Remove clothing, cutting off any clothes that must be removed over head</li> <li>• Place all clothes in plastic bag</li> <li>• Wash off skin</li> </ul>

**Plant Extracts (Alkaloids)**

Plant extracts, or alkaloids, called mitotic inhibitors, prevent cell division. Plants used for this purpose include periwinkle, the mandrake plant, the Pacific yew, and a shrub called *Camptotheca acuminata*. These drugs are called mitotic inhibitors because they prevent formation of the mitotic spindle. The cells cannot complete mitosis and the cells die. Cancers treated with plant alkaloids include soft tissue, breast, ovarian, testicular, stomach, prostate, head, neck, and lung cancers, Wilms' tumor, leukemia, Hodgkin's disease, and non-Hodgkin's lymphoma. Examples include docetaxel (Docefrez, Taxotere), etoposide (VePesid, Toposar), irinotecan (Camptosar), paclitaxel (Onxol, Taxol), teniposide (Vumon), topotecan (Hycamtin), vinblastine (Velban), vincristine (Oncovin, Vincasar PFS), and vinorelbine (Navelbine).

**Hormones**

Hormones can help the brain communicate with other organs in the body (see Chapter 15) and can tell them when to grow and how to function. Some hormones such as testosterone, estrogen, and luteinizing hormone are powerful and can significantly impair the growth of some tumors. Tumors that depend on hormones for growth can be eradicated by large amounts of an opposing hormone. For example, tumors that thrive under the effects of estrogen, such as breast cancer, can be killed by injections of fluoxymesterone (Androxy, Halotestin), testolactone (Teslac), or testosterone (Andro LA 200, Delatestryl, DepAndro 100, and Depo-Testosterone). Conversely, a patient with prostate or testicular cancer may be treated with oral doses of antiandrogens such as bicalutamide (Casodex), flutamide (Eulexin), or nilutamide (Nilandron), which block testosterone production, or with estrogen, such as or Cenestin, Enjuvia, Premarin, or estradiol (Estrace, Femtrace, Gynodiol), which makes the environment unfavorable for tumor growth. (See the Master the Essentials table for a more complete list of hormonal medications used as antineoplastic agents.)

**Biological Therapy**

Biological therapy involves assisting the body's immune system, rather than destroying the cancer cells. However, biological therapy also alters the nature of the response and often produces severe side effects. Three drug classes fall under this heading: biological response modifiers, monoclonal antibodies, and immunomodulators.