

## Bleomycin

Bleomycin is an antitumor antibiotic which is used to treat testicular cancer and Hodgkin lymphoma, as well as squamous cell carcinoma. This medication works by inducing free superoxide and hydroxyl radicals, which cleave DNA, leading to breaks in cancerous DNA strands. Complications of this medication include pulmonary fibrosis, as well as skin changes and mucositis.



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### Indications

#### Testicular Cancer

##### Testicular Tumor-guys

Bleomycin is used in treating testicular cancers, and is typically used in germ-cell tumors. It is typically combined with Etoposide and Cisplatin, as they have complimentary effects on inhibiting cancerous DNA.

#### Hodgkin's Lymphoma

##### Hog-king with Lime-foam

Bleomycin is often used as a first-line chemotherapy drug for treating Hodgkin's lymphoma. It is typically used in the ABVD or BEACOPP drug regimens.

### Mechanism of Action

#### Induces Free Radical Formation

##### Free Radicals

Though the exact mechanism of action isn't fully understood, it is hypothesized that this drug chelates metal ions, leading to a pseudoenzyme which converts oxygen to superoxide and hydroxyl free radicals. These then go on to cleave DNA.

#### Breaks in DNA Strands

##### Broken DNA Strands

The free radicals caused by Bleomycin induce DNA strand breaks. It is also hypothesized that another mechanism of Bleomycin action is that it binds at specific sites on DNA strands and causes incision.

### Side Effects

#### Pulmonary Fibrosis

##### Fiber-ball hitting Lungs

The most severe side effect of this medication is pulmonary fibrosis, which can lead to impaired lung function in patients. Furthermore, due to its mechanism of action, it can possibly lead to oxygen toxicity, which may play a role in lung injury.

#### Skin Changes

##### Changing into Skin-suit

There are various skin changes that can occur with Bleomycin treatment. These include rash, alopecia, hyperpigmentation and Raynaud's phenomenon. Dermatographism can also be seen, and is described by raised urticaria that occurs when the skin is stroked.

#### Mucositis

##### Mucous-on-fire

Patients taking Bleomycin can experience uncomfortable mucositis, or inflammation of the mucous membranes, typically in the mouth.