

## Busulfan

Busulfan is an alkylating anticancer agent used to treat CML and as a conditioning agent prior to bone marrow transplantation. As an alkylating agent, it works to cross-link DNA. Side effects of busulfan use include myelosuppression, pulmonary fibrosis, and hyperpigmentation.



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### Indications

#### CML

##### CaMeL

Busulfan is used to treat CML (chronic myelogenous leukemia) and because of its low cost. The gold standard of treatment for CML, now, is imatinib.

#### Bone Marrow Ablation

##### Bone Arrow Baster

This drug is used to ablate a patient's bone marrow and is indicated as a conditioning agent prior to bone marrow transplantation, especially in patients with CML.

### Mechanism

#### Cross-Links DNA

##### Linked DNA

Busulfan is an alkylating agent that forms DNA-DNA intrastrand crosslinks. This process prevents DNA replication, as these crosslinks cannot be repaired by cellular machinery, causing the cancer cell to undergo apoptosis.

### Side Effects

#### Myelosuppression

##### Suppressed Red and White-blood-cells

This drug leads to severe myelosuppression, hence its use as an ablation agent.

#### Pulmonary Fibrosis

##### Fiber-ball hitting Lungs

The most notable toxicity of this medication is interstitial pulmonary fibrosis, leading to the term "Busulfan lung."

## **Hyperpigmentation**

### **Hiker-pig with Hyperpigmentation**

Patients can develop skin hyperpigmentation with the use of Busulfan. The presentation of this skin manifestation mimics Addison's disease, affecting the joints and skin creases as bronzing.