

## Dactinomycin (Actinomycin D)

Dactinomycin, or actinomycin D, is an antitumor antibiotic used to treat childhood tumors. It is indicated for use against Wilms tumor, Ewing's sarcoma, rhabdomyosarcoma and gestational trophoblastic malignancy. It works by intercalating DNA, halting the replication process in tumors. A common side effect of this drug is myelosuppression.



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### Indications

#### Wilms' Tumor

[Willy-Wonkey the Tumor-guy](#)

Dactinomycin is indicated to treat Wilms' tumor, or nephroblastoma, which is a childhood tumor of the kidneys.

#### Rhabdomyosarcoma

[Rabbi-shark-comb](#)

Dactinomycin can be used in conjunction with radiation therapy to treat rhabdomyosarcoma, which is sarcoma of the connective tissues. These can be found in any location in the body, and typically affect anatomical areas lacking skeletal muscle, like the head, neck and GU tract.

#### Ewing's Sarcoma

[Earring-shark-comb](#)

Ewing's sarcoma is a malignant bone cancer that effects teenagers and young adults. This can be treated with neoadjuvant therapy, where dactinomycin is combined with radiation therapy.

#### Gestational Trophoblastic Malignancy

[Pregnant Trophy-blast Malignant-man](#)

This medication can be used to treat gestational trophoblastic malignancy, such as malignant hydatidiform moles.

### Mechanism

#### Intercalates DNA

[Inner-cleates DNA](#)

This drug works by intercalating DNA, effectively inhibiting its transcription. It does so by binding to the DNA transcription initiation complex, preventing RNA chain elongation. Dactinomycin "gets in the way," physically blocking RNA transcription.

### Side Effect

## **Myelosuppression**

### Suppressed Red and White blood cells

The most common side effect of dactinomycin use is myelosuppression, leading to decreased red and white blood cell production.