

- ***Elimination*** is approximately equal between the ***urinary and fecal routes***.
- Adverse effects include fever, rash, nausea, and phlebitis.
- Caspofungin ***should not be*** coadministered with cyclosporine.
- Caspofungin is a second-line antifungal for those who **have failed or cannot tolerate amphotericin B or an azole.**

■ Allylamines-thiocarbamates

- (terbinafine hydrochloride and naftifine hydrochloride) are reversible noncompetitive inhibitors of the fungal enzyme squalene monooxygenase (squalene 2,3-epoxidase), which converts squalene to lanosterol.
- This plus the accumulation of toxic amounts of squalene result in the death of the fungal cell.

■ **Allylamines - thiocarbamates**

■ **Terbinafine**

- **Terbinafine is the drug of choice for treating dermatophytosis and, especially, onychomycosis (fungal infections of nails). It is better tolerated, requires shorter duration of therapy, and is more effective than either itraconazole or griseofulvin.**

- **Antifungal spectrum:** Antifungal activity is limited to **dermatophytes and Candida albicans**. Therapy is prolonged usually about **3 months**.

- **Pharmacokinetics:** Terbinafine is orally active, although its **bioavailability is only 0.4** due to **first-pass metabolism**.

- **It is greater than 99 percent bound to plasma proteins. It is deposited in the skin, nails, and fat.**

- **Terbinafine accumulates in breast milk and, therefore, should not be given to nursing mothers.**
 - **A prolonged terminal half-life of 200 to 400 hours may reflect the slow release from these tissues.**
 - **Terbinafine is extensively metabolized prior to urinary excretion.**
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- **Side effects:** are gastrointestinal disturbances (diarrhea, dyspepsia, and nausea), headache, and rash. Taste and visual disturbances have been reported *as well as transient elevations in serum liver enzyme levels*.
 - Although terbinafine is extensively metabolized, there **does not seem** to be a significant **risk of reduced clearance of other drugs**.
 - **Rifampin decreases blood levels of terbinafine, whereas cimetidine increases blood levels of terbinafine.**

- **Dosage reductions are required with renal or hepatic insufficiency.**
- **Oral terbinafine is generally well tolerated but *occasionally causes gastric distress and liver enzyme elevation*.**

■ ALLYLAMINES

- **Naftifine hydrochloride (*Naftin*) is available for topical use only in the treatment of cutaneous dermatophyte and *Candida* infections.**

■ MISCELLANEOUS TOPICAL

■ ANTIFUNGAL AGENTS

- **Ciclopirox olamine** (*Loprox*) is a pyridone derivative available for the **treatment of cutaneous dermatophyte infections, cutaneous *C. albicans* infections, and tinea versicolor caused by *Malassezia furfur*. It interferes with fungal growth by inhibiting macromolecule synthesis.**
- **Tolnaftate** (*Tinactin*, others) is a nonprescription antifungal agent **effective in the topical treatment of dermatophyte infections and tinea.** The mechanism of action is unknown.

■ Sources

- <http://en.wikipedia.org/wiki/Antifungal>
- <http://www.lamisil.com/>
- <http://www.tinactin.com/>
- <http://en.wikipedia.org/wiki/Griseofulvin>
- <http://www.journals.uchicago.edu/CID/journal/issues/v30n4/990666/990666.text.html?erFrom=-4860378516935905751Guest>
- <http://www.mycology.adelaide.edu.au/downloads/antifungals.pdf#search=%22antifungal%20drugs%22>
- <http://en.wikipedia.org/wiki/Nystatin>
- <http://inventors.about.com/library/inventors/blnystatin.htm>

■ **WWW sites**

■ Please note that this list is by no means exhaustive!

■ **Fungal infections, general**

■ <http://www.clinical-mycology.com>

■ <http://www.mycology.adelaide.edu.au>

■ <http://fungus.utmb.edu/mycology>

■ <http://www.doctorfungus.org/>

■ <http://www.medicalmycology.org/>

■ <http://www.medsche.wisc.edu/medmicro/myco/mycology.htm>

■ <http://www.fungalforum.com>

■ **Specific infections**

■ <http://www.aspergillus.man.ac.uk>

■ <http://www.genolist.pasteur.fr/CandidaDB>

■ <http://www.panix.com/~candida/>

■ <http://alces.med.umn.edu/Candida.html>