

# Antifungals

**Antifungals** are chemotherapeutics designed against yeasts, yeast microorganisms and fungi. Mycoses are divided into:

- **local mycoses** – not severe, only irritate, occurrence on mucous membranes, skin, nails, etc.;
- **systemic mycoses** – they can also be life-threatening, most often in patients with weakened immune system or iatrogenic disease. The most common causative agent is *Candida albicans*.

## Classes

### Imidazole antifungals

They are not as effective as the more toxic amphotericin. They affect cytochrome P-450, so ergosterol is not formed. Side effects are common but mild (vomiting, abdominal pain, allergies).

#### Examples:

- **Ketoconazole** – a broad antifungal spectrum (dermatophytes, candida, dimorphic fungi, eumycetes, phycomycetes), affects the function of cytochrome P-450 (blockade of ergosterol production). It is administered topically, systemic use is no longer recommended due to side effects.<sup>[1]</sup>
- **Clotrimazole** – topical, used to treat local dermatophytosis and vaginal candidiasis.

### Triazole antifungals

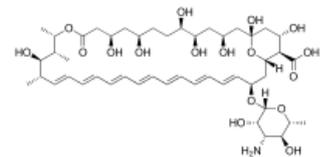
- **Flukonazol** – more effective than imidazole antifungals. It causes fewer side effects. It is used for organ and disseminated mycoses.

### Polyene antifungals

They are highly effective, but they are also highly toxic (especially to the kidneys and CNS). In fungal cells, they bind to ergosterol and cause cell wall perforations. Mainly affects yeasts and fungi. Nystatin is administered topically.

#### Examples:

- **Amphotericin B** – mainly for yeasts, fungi and protozoa, high toxicity, therefore imidazole antifungals are preferred. It is only used for severe mycoses. Administration is intravenous only.
- **Nystatin** – antifungal for topical use.



Amphotericin B

### Other systemic antifungals

- **Griseofulvin** – narrow spectrum, prevents the growth of fibers through the skin, is used to treat onychomycosis (fungal nail disease).
- **Flucytosine** – broad spectrum, penetrates well, is used to treat systemic mycoses.

## References

### Related articles

- Antibiotics
- Antivirals
- Nystatin
- Mycosis

### External

- Antifungal medication - Wikipedia (<https://en.wikipedia.org/wiki/Antifungal>)

### Reference

1. EMA doporučuje pozastavení používání ketokonazolu v perorální formě (<http://www.sukl.cz/ketokona-zol-v-peroralni-forme-ema-doporucuje-pozastaveni>) - SÚKL

### Literature

- HYNIE, Sixtus. *Farmakologie v kostce*. 2. vydání. Praha : Triton, 2001. 520 s. ISBN 80-7254-181-1.

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