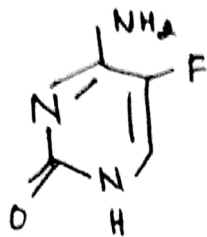


Nucleoside Antagonist - 5 Fluoro Cytosine



Mech: The drug enters the fungal cell by active transport on ATP. 5FC is deaminated by cytosine deaminase to yield 5FU. enters both DNA and RNA causing faulty synthesis.

Use: Systemic infections caused by *Candida* and *Cryptococcus* species.

In DNA $\rightarrow$ 5FUUMP $\rightarrow$ THYMIDILATE SYNTHESIS IN DNA

In RNA 5FUUMP $\rightarrow$ 5FUDP $\rightarrow$ 5FUTP $\rightarrow$ RNA (Faulty RNA)

Differs by the concept that Cytosine deaminase enzyme was not found in Human/Mammalian cell.

ANTIFUNGAL ANTIBIOTICS

Polyenes - Genus *Streptomyces*

(i)

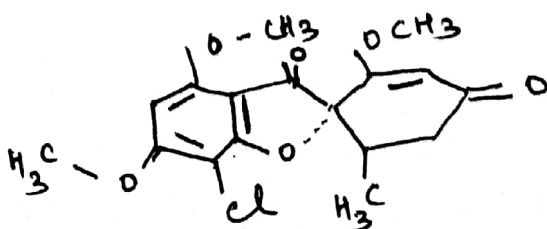
26 membered ring polyenes - Natamycin

38 membered ring Macrocycles - Amphotericiin-B

Nystatin

(Other antibiotics) $\leftrightarrow$ spiro compound.

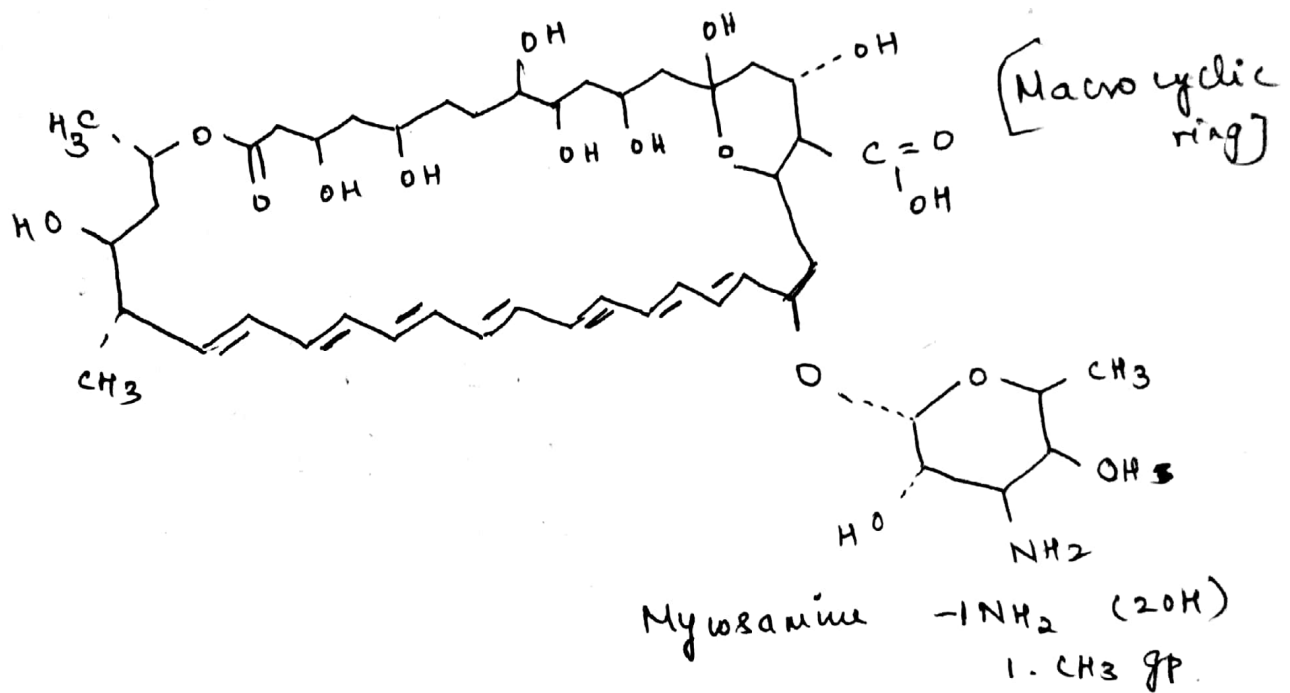
(ii) Griseofulvin - *penicillium griseofulvum*
Tinea infection - Spiro compound



7. chloro 2', 4, 6 trimethoxy
6' β -methyl spiro
benzofuran -
(3, 4' dione)

Mech: Amphotericin B interacts with membrane sterols (ergosterol in fungi) to produce an aggregate that forms a trans membrane channel. Intermolecular hydrogen bonding interactions among OH, COO and NH₂ gp stabilize the channel in its open form destroying symport activity and allowing the cytoplasmic contents to leak out.

Structure: Amphotericin B - [38 membered]



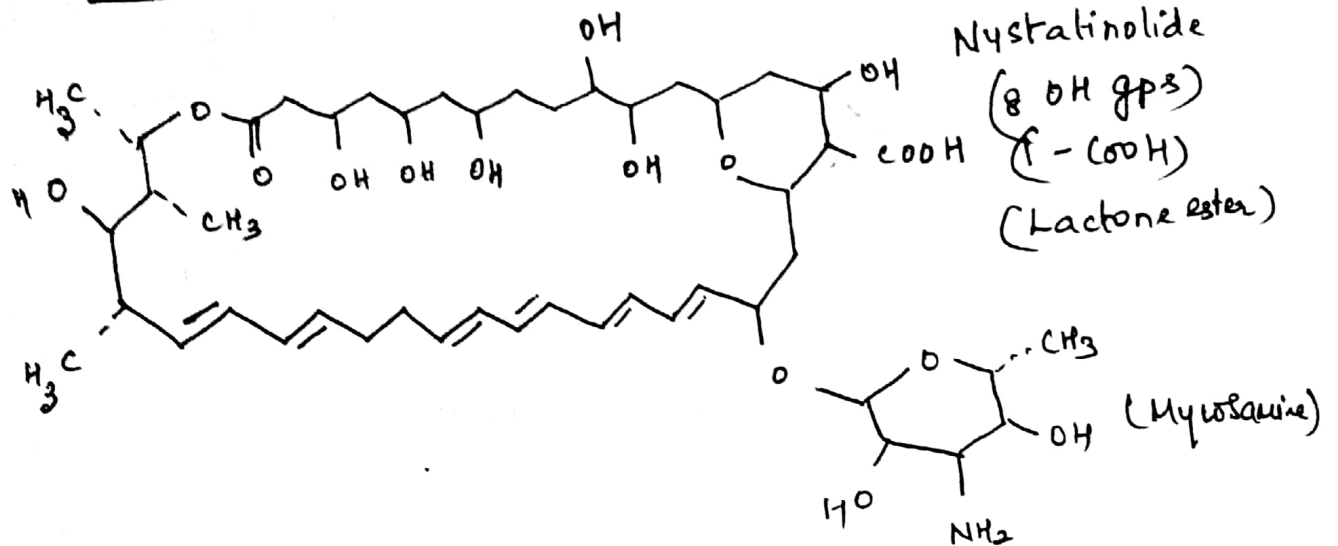
7 double bonds

1. carboxylic gp in macrocyclic ring

Use: Severe potentially life threatening fungal infections as parenterals. Coccidioidomycosis, Histoplasmosis, Sporotrichosis, Mucormycosis and Aspergillosis. Cryptococcosis (CNS) - mixed with CSF fluid.

Adverse effect: Severe Nephrotoxicity. Renal toxicity

Nystatin :- from the strain of the actinomycete Streptomyces noursei.



Use : Topical agent local and gastrointestinal
monilial infections caused by *C. albicans*
and other species Vaginal tablets - Vaginal
Candidiasis

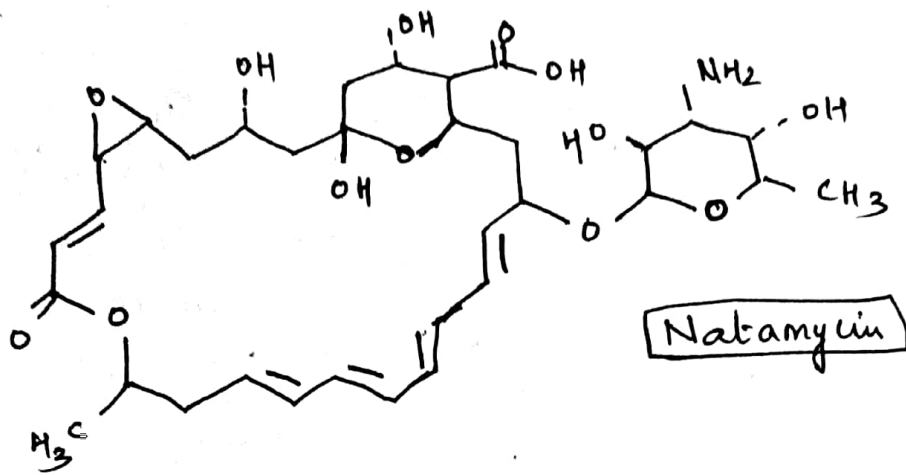
Natamycin - Streptomyces natamycinus

- Amphoteric

26 membered lactone

Mech : causes both potassium ion leakage and
cell lysis fungistatic and fungicidal

Use : Ophthalmic suspension for Conjunctivitis
blepharitis and Keratitis.



Natamycin

26 membered lactone
macrocyclic carbonyl.
3-OH grps
α - COOH gr
α trans epoxide
Myosamine

Aglycone → water insoluble.

Use:

In vitro against a number of yeasts and filamentous fungi incl. *Candida*, *Aspergillus*, *Cephalosporium*, *Penicillium* and *Fusarium* sp.

Allyl amine and Related Compounds - ^{inhibits} Biosynthesis of Ergosterol

Allyl amine Compounds - Naftifine HCl
Terbinafine HCl

Allylamine related - Tolnaftate

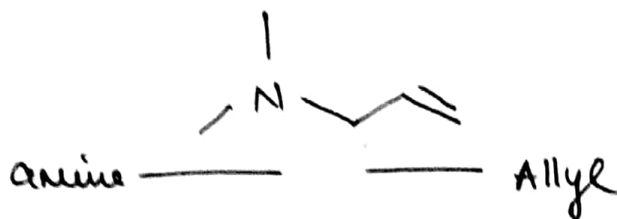
Mech - Compds interfere with an early step in ergosterol biosynthesis. - epoxidation of squalene catalyzed by squalene epoxidase

These compounds open up the epoxide yields carbocation and thus inhibits the enzyme shutdown the ergosterol biosynthesis.

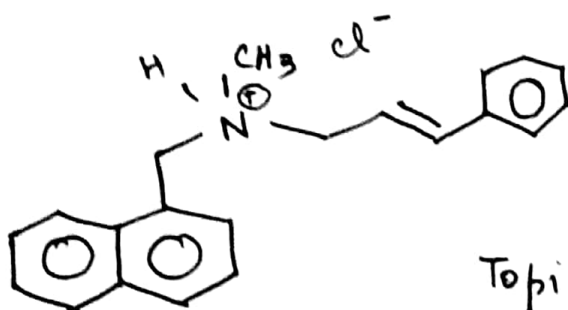
07/12/2020 (Mon)

ALLYLAMINE

ANTIFUNGALS



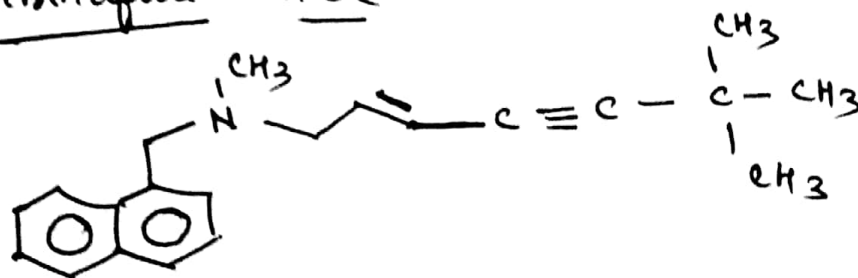
Naftifine HCl



M.O.A. Inhibits the cell membrane synthesis by blocking epoxidation of squalene

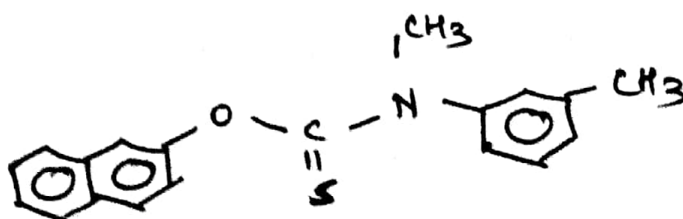
Topical - Dermatophytic infections
systemic - Onychomycosis

Terbinafine HCl



Tolnaftate

(N-allylamine Related compound)



Tinea
infectious