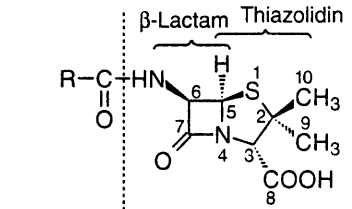
Antibiotika

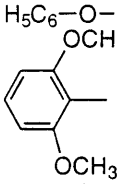
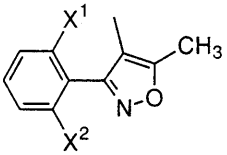
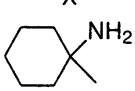
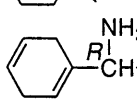
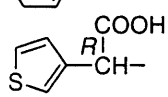
Sind Stoffe biologischen Ursprungs, welche - ohne Enzymcharakter zu besitzen - in geringen Konzentrationen Wachstumsvorgänge hemme.
Bakteriostatisch: Bakterien werden im Wachstum gehemmt
Bakterizid:: Bakterien werden irreversibel geschädigt oder abgetötet
Resistenz: Keime sind oder werden (durch verschiedenste Mechanismen) gegen das Antibiotikum unempfindlich

Einteilung nach Substanzklassen:

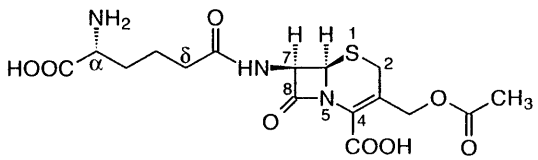
ß-Lactam-Antibiotika:

Penicilline (aus *Penicillium notatum* oder *chrysogenum*)



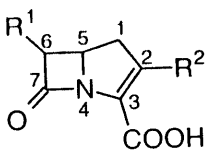
	R	Name bzw. Freiname	Kurzbez. USA	Engl.
Natürlich	$H_3C-CH_2-CH=CH-CH_2-$	2-Pentenyl-P.	I	F
	$H_5C_6-CH_2-$	Benzyl-P.	II	G
	HO-C$_6$H$_4$-CH_2-	4-Hydroxy-benzyl-P.	III	X
	$H_3C-(CH_2)_6-$	Heptyl-P.	IV	K
	$HOOC-CH(NH_2)-(CH_2)_3-$	Synnematin B		N
Biosynthet.	$H_5C_6-O-CH_2-$	Phenoxymethyl-P.		V
	$H_2C=CH-CH_2-S-CH_2-$	Allylthiomethyl-P.	O	AT
	$H_3C-(CH_2)_3-S-CH_2-$	Butylthiomethyl-P.		BT
	$H_3C-C(Cl)=CH-CH_2-S-CH_2-$	(3-Chlor-2-butenyl-thiomethyl)-P.		S
Halbsynthet.	$H_5C_6-CH(NH_2)-$	Ampicillin		
	$H_5C_6-CH(COOH)-$	Carbenicillin		
	$H_5C_6-O-CH(CH_3)-$	Phenethicillin		
	$H_5C_6-O-CH(C_2H_5)-$	Propicillin		
		Meticillin		
		Oxacillin ($X^1 = X^2 = H$) Cloxacillin ($X^1 = H$, $X^2 = Cl$) Dicloxacillin ($X^1 = X^2 = Cl$) Flucloxacillin ($X^1 = Cl$, $X^2 = F$)		
		Ciclacillin		
		Epicillin		
		Ticarcillin		

Cephalosporine (*Acremonium chrysogenum*)

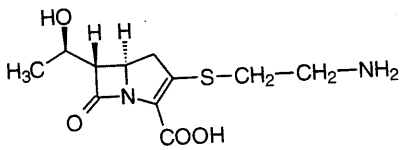


C. C

Carbapeneme

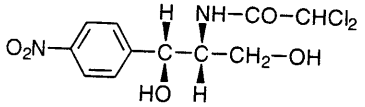


Thienamycin: (*Streptomyces cattlyea*)

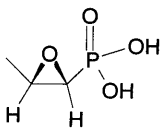


„Einfache:“

Chloramphenicol (*Streptomyces venezuelae*)

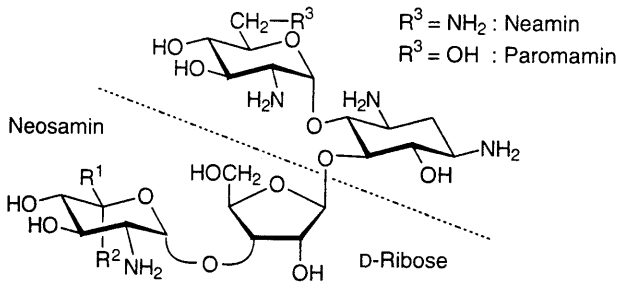


Fosfomycin (*Sterptomyceten, Pseudomonaden*)



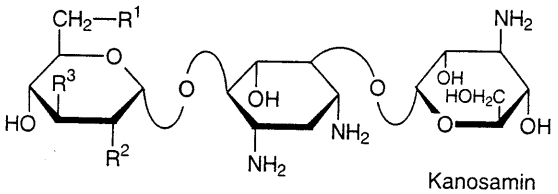
Aminoglycosidantibiotika:

Neomycine / Paromomycine: (*Streptomyces fradiae*)



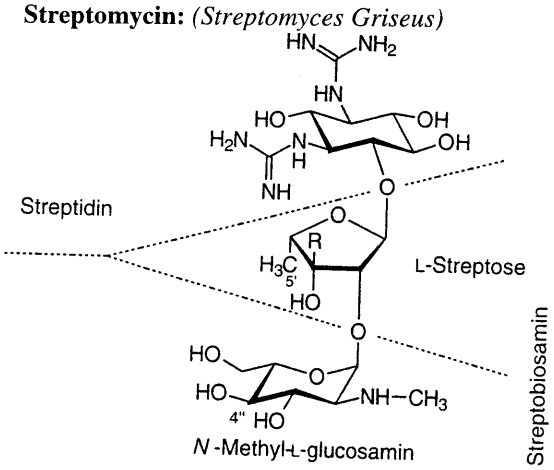
R^1 = H , R^2 = CH_2NH_2 , R^3 = NH_2 : Neomycin B
R^1 = CH_2NH_2 , R^2 = H , R^3 = NH_2 : Neomycin C
R^1 = H , R^2 = CH_2NH_2 , R^3 = OH : Paromomycin I
R^1 = CH_2NH_2 , R^2 = H , R^3 = OH : Paromomycin II

Kanamycine: (*Streptomyces kanamycetus*)



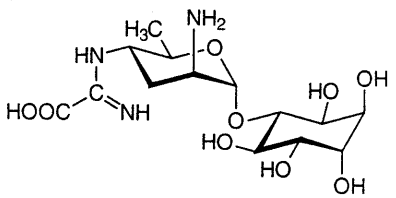
R^1	R^2	R^3	
NH_2	OH	OH	K. A
NH_2	NH_2	OH	K. B
OH	NH_2	OH	K. C
NH_2	NH_2	H	Tobramycin

Streptomycin: (*Streptomyces Griseus*)



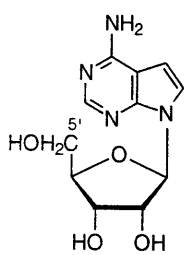
R = CHO : Streptomycin
R = CH_2OH : Dihydrostreptomycin

Kasugamycin (*Streptomyces kasugaensis*)

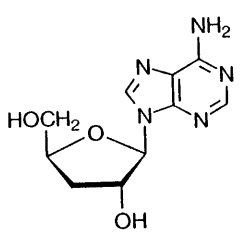


Nucleosidantibiotika:

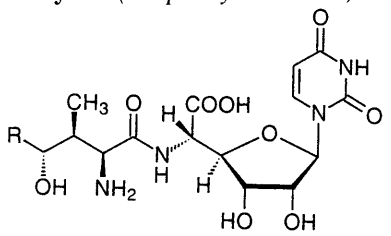
Tubercidin (*Streptomyces tubericidus*)

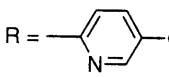


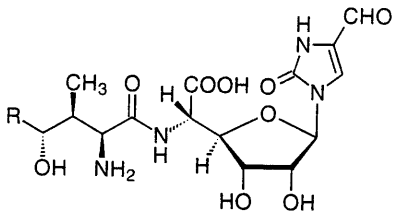
Cordycepin (*Cordyceps-, Aspergillus- etc.*)

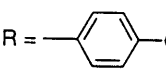


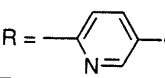
Nikkomycine *(streptomyces tendae)*



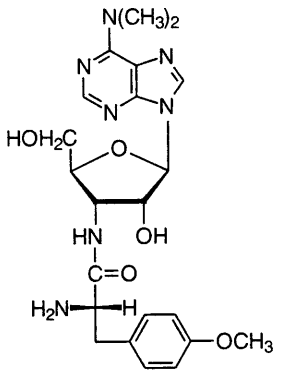
R =  OH : Nikkomycin Z



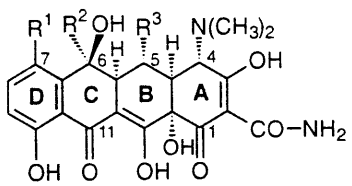
R =  OH : Nikkomycin B x

R =  OH : Nikkomycin X

Puromycin *(Streptomyces alboniger)*



Tetracycline: *(Streptomyces aureofaciens* oder *rimosus)*

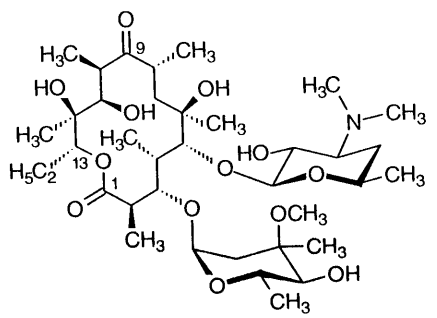


	R^1	R^2	R^3
Tetracyclin (**1**)	H	CH_3	H
Chlortetracyclin (**2**)	Cl	CH_3	H
Oxytetracyclin (**3**)	H	CH_3	OH
6-Desmethyl-tetracyclin (**4**)	H	H	H

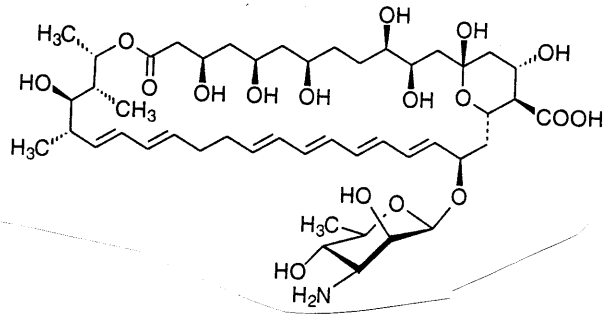
3 = Aureomycin

Makrolid-Antibiotika:

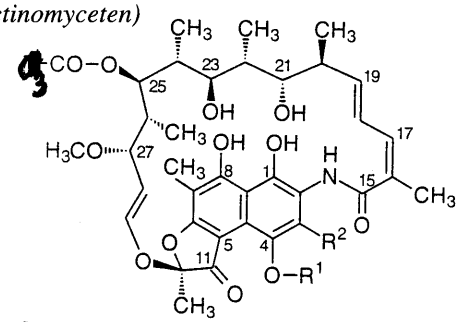
Erythromycin: *(Saccharopolyspora erythrea)*



Nystatin (Fungicidin *; Streptomyces noursei)*

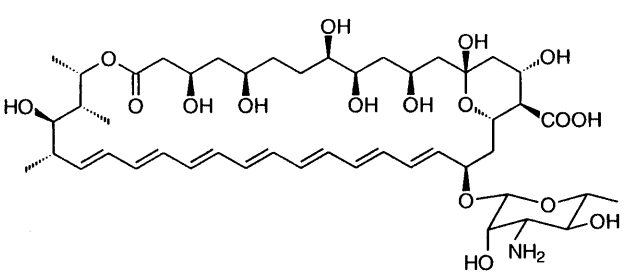


Rifamycine *(Actinomyceten)*



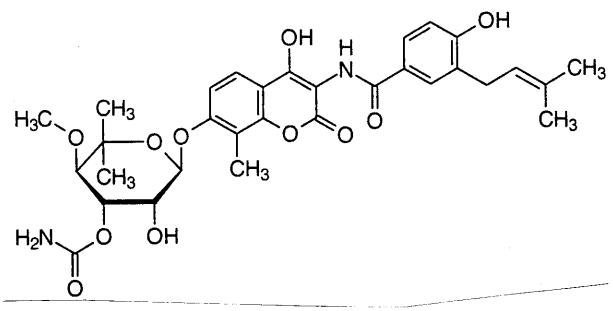
	R^2	
H	H	R. SV
CH_2COOH	H	R. B
H	$CH{=}N{-}N\langle\rangle N{-}CH_3$	Rifampicin

Amphotericin *(Streptomyces nodosus)*

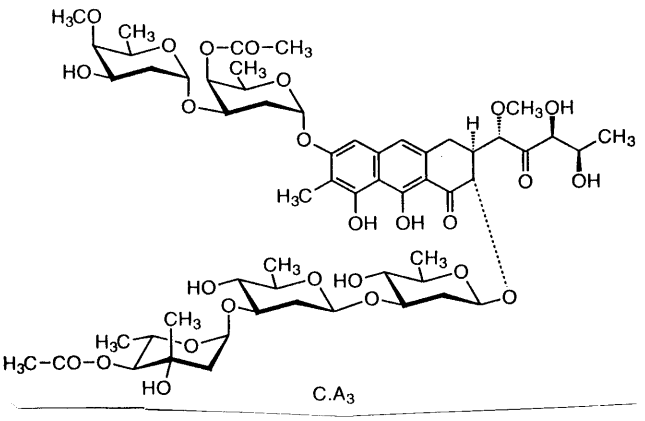


Zucker + Aromaten:

Novobiocin (*Streptomyces speroides*)

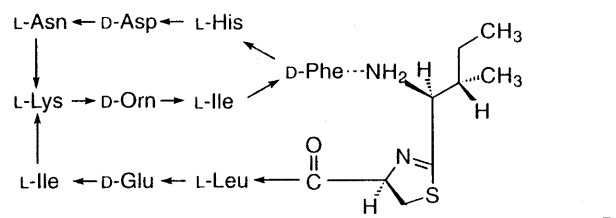


Chromomycine (*Streptomyces griseus*)

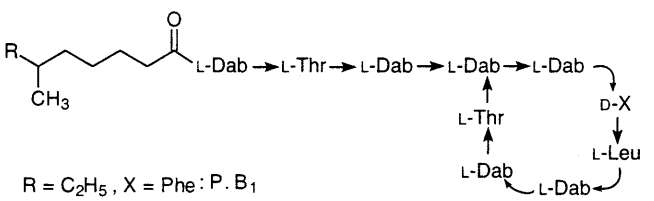


Polypeptid-Antibiotika:

Bacitracin (*Bacillus subtilis*)

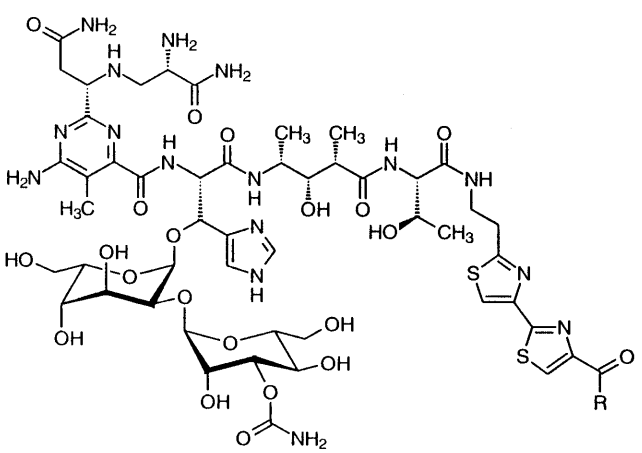


Polymyxine (*Bacillus polymyxia*)



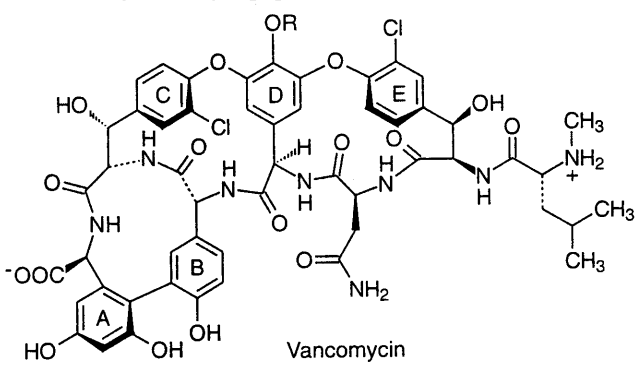
R = C_2H_5, X = Phe : P. B_1
R = CH_3, X = Phe : P. B_2
R = C_2H_5, X = Leu : Colistin A = P. E_1
R = CH_3, X = Leu : Colistin B = P. E_2

Bleomycine (Glycopeptide; *Streptomyces verticillus*)

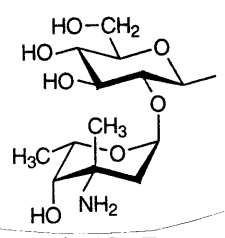


R = NH—$(CH_2)_3$—$\overset{+}{S}(CH_3)_2$: B. A_2
R = NH—$(CH_2)_4$—NH—C(=NH)—$\overset{+}{N}H_3$: B. B_2

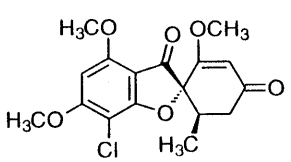
Vancomycin (Glycopeptid, *aus Actinomyceten*)



R =



Griseofulvin (*fungistatisch, Mitosehemmer; Penicillium griseofulvum*)



Ionomycin (*Ca-Transport, Streptomyces conglobatus*)