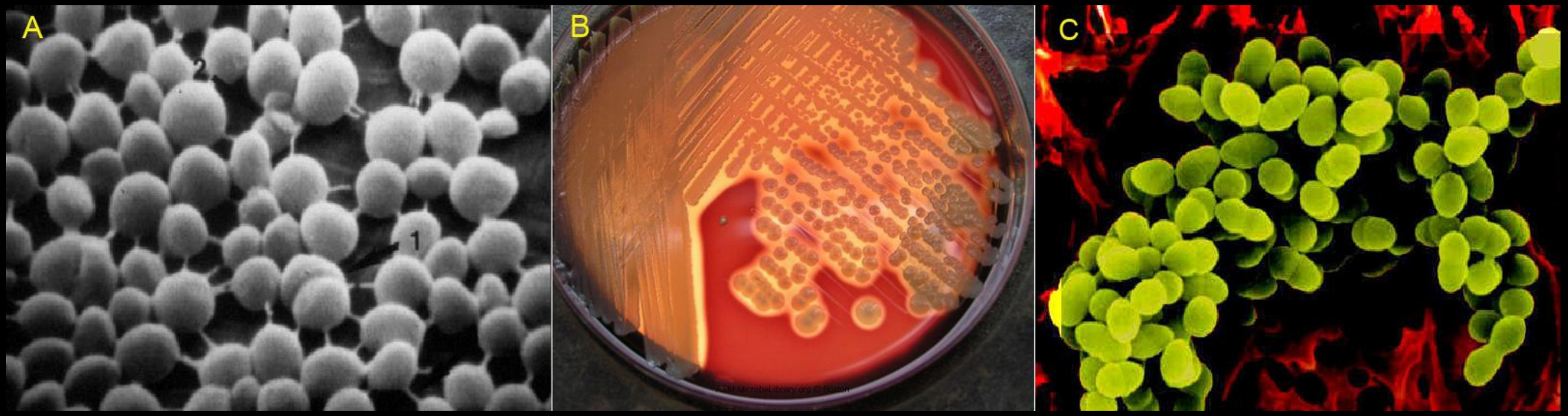
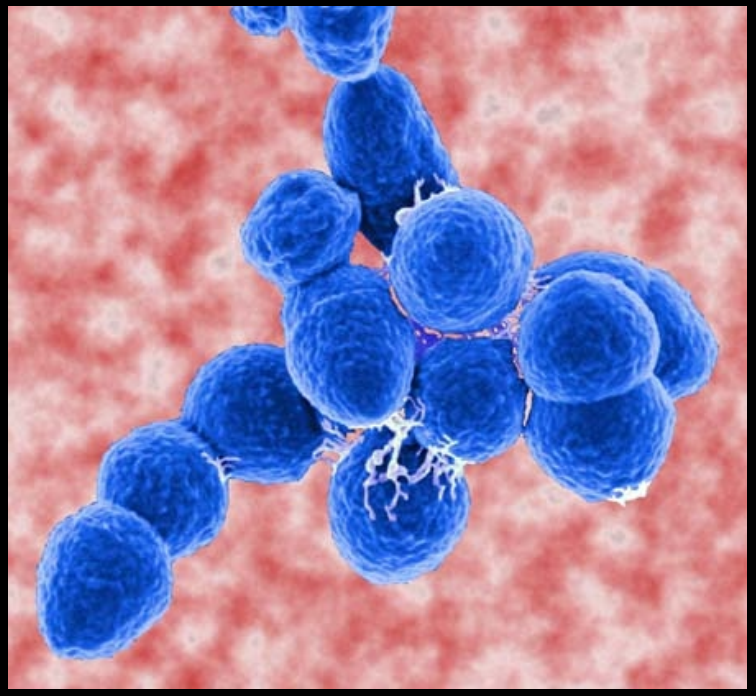
IZGLED RAZLIČITIH PATOGENIH BAKTERIJA POD SKENIRAJUĆIM ELEKTRONSKIM MIKROSKOPOM (BOJE SU DOBIJENE KOMPJUTERSKOM SIMULACIJOM) KAO I NJIHOVE KOLONIJE NA HRANLJIVOJ PODLOZI (KULTURI)



(A) SCANNING ELECTRON MICROSCOPE (SEM) OF STAPHYLOCOCCI (B) STAPHYLOCOCCI ON AGAR (BA) (C) ELECTRON MICROSCOPE PICTURE OF S. AUREUS

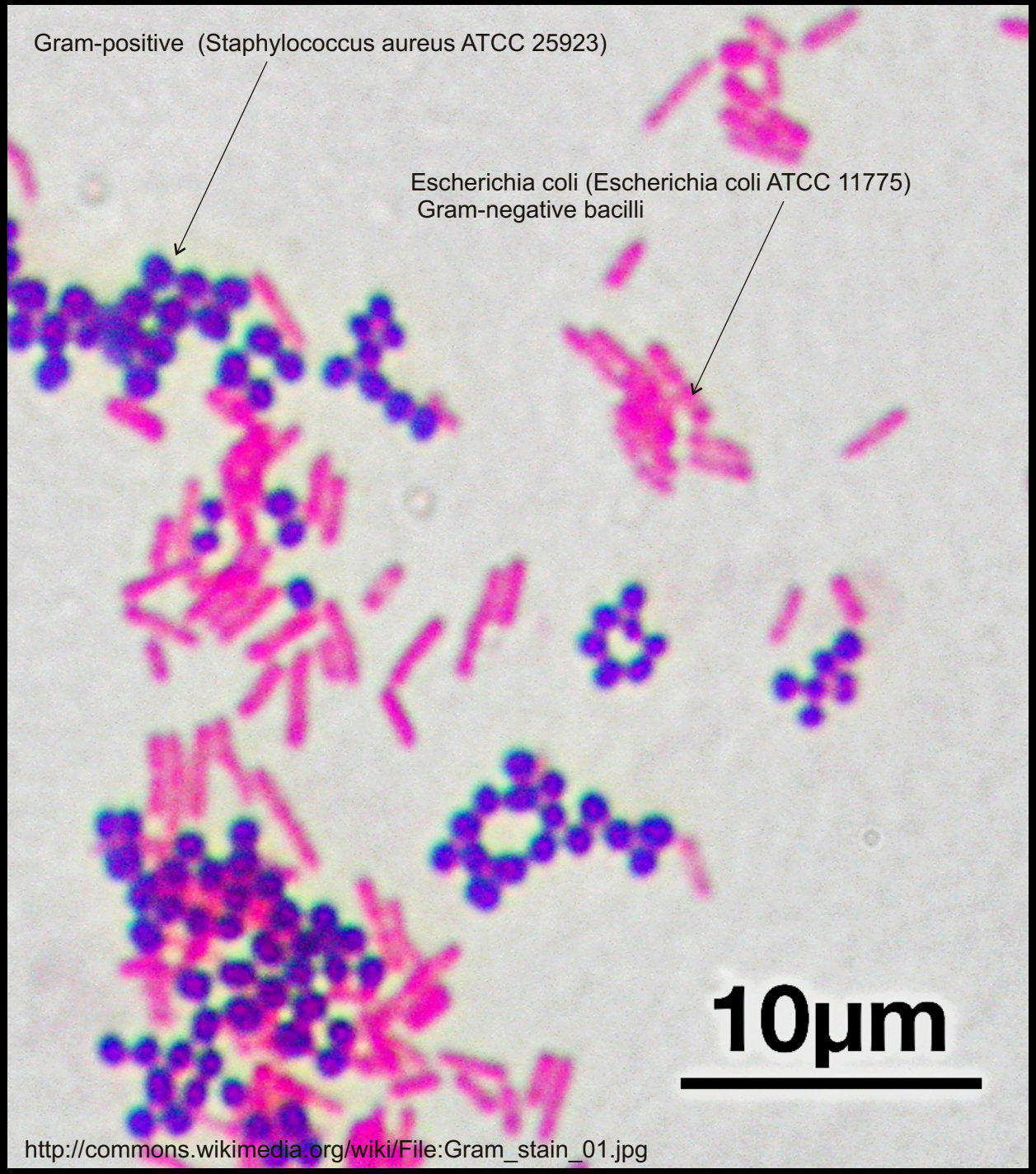


Hans Christian Joachim Gram (September 13, 1853 – November 14, 1938) was a Danish bacteriologist noted for his development of the Gram stain.

Gram staining, also called Gram's method, is a method of differentiating bacterial species into two large groups (gram-positive and gram-negative). The name comes from the Danish bacteriologist Hans Christian Gram, who developed the technique.

Gram staining differentiates bacteria by the chemical and physical properties of their cell walls by detecting peptidoglycan, which is present in a thick layer in gram-positive bacteria.[1] In a Gram stain test, gram-positive bacteria retain the crystal violet dye, while a counterstain (commonly safranin or fuchsine) added after the crystal violet gives all Gram-negative bacteria a red or pink coloring.

The Gram stain is almost always the first step in the identification of a bacterial organism. While Gram staining is a valuable diagnostic tool in both clinical and research settings, not all bacteria can be definitively classified by this technique. This gives rise to gram-variable and gram-indeterminate groups as well.



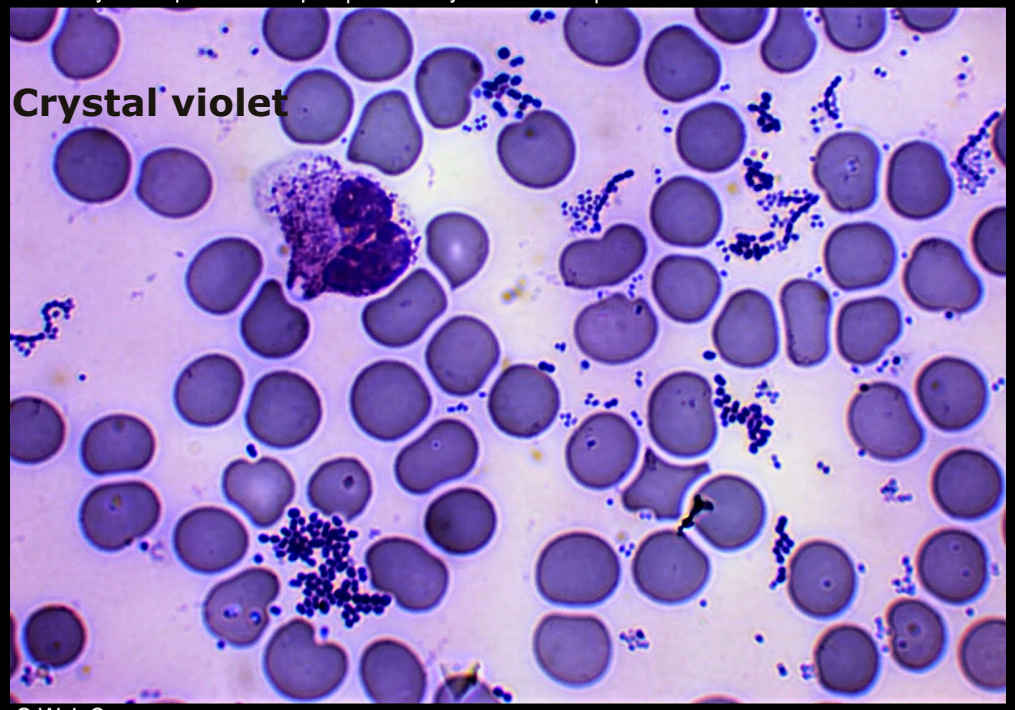
http://commons.wikimedia.org/wiki/File:Gram_stain_01.jpg

A Gram stain of mixed Staphylococcus aureus (Staphylococcus aureus ATCC 25923, Gram-positive cocci, in purple) and Escherichia coli (Escherichia coli ATCC 11775, gram-negative bacilli, in red), the most common Gram stain reference bacteria

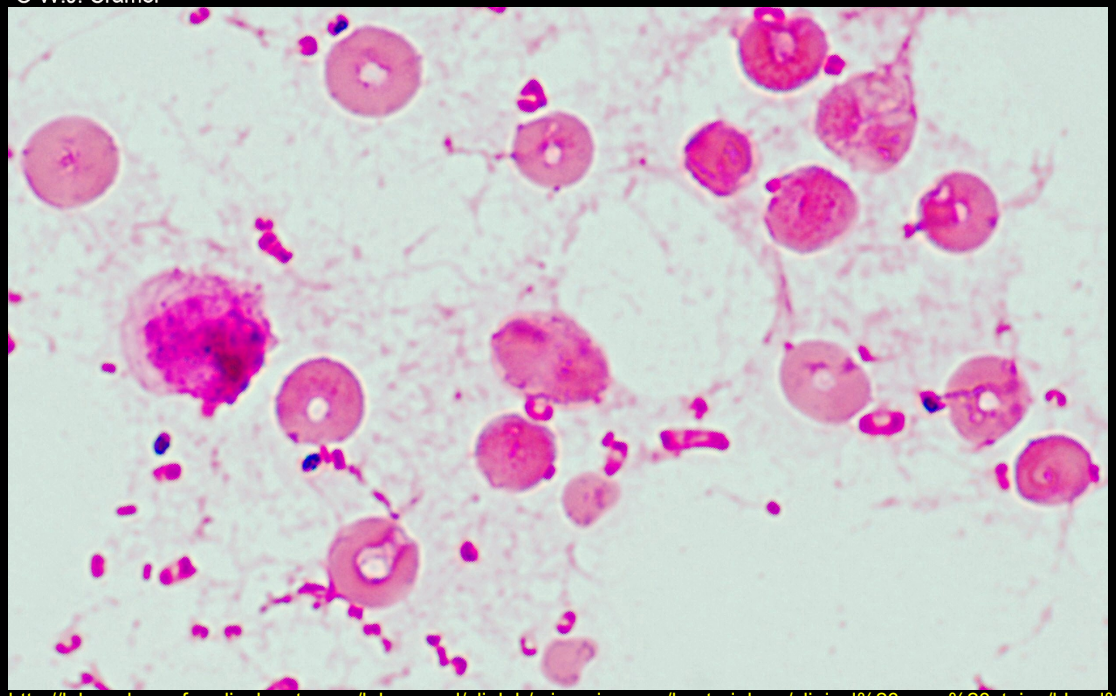
RAZLIKE U BOJENJU HISTOLOŠKOG PREPARATA POTIČU OD RAZLIKA U KONSTITUCIJI ĆELIJSKOG ZIDA.

POSTOJI RELATIVNA KORELACIJA IZMEĐU GRAM-POZITIVNIH I GRAM -NEGATIVNIH BAKTERIJA I NJIHOVE OSETLJIVOSTI PREMA POJEDINIM ANTIBIOTICIMA.

Haemolysis streptococcus sepsis | BA410 obj. BF 100X o.i. | Moticam 2500

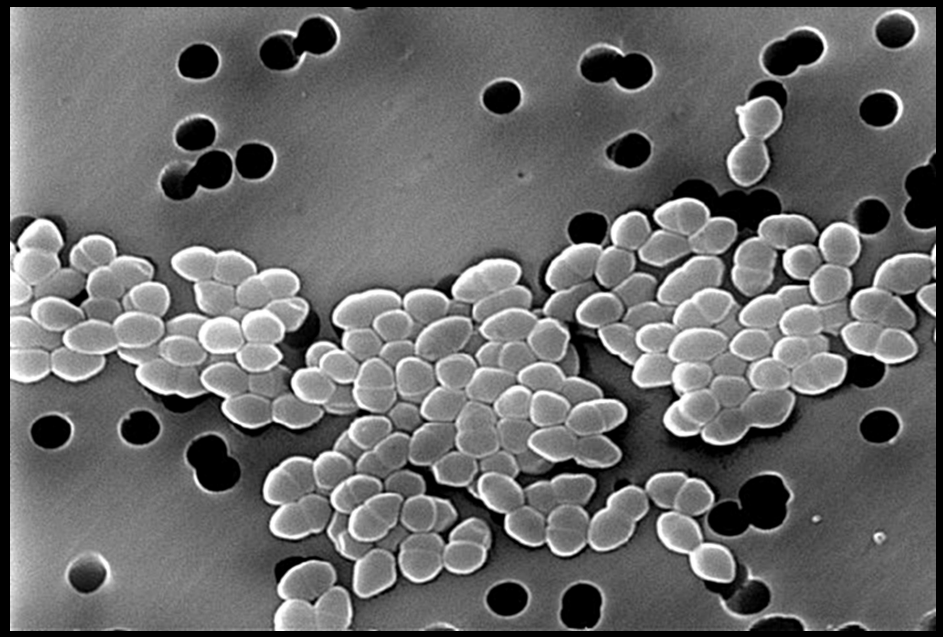


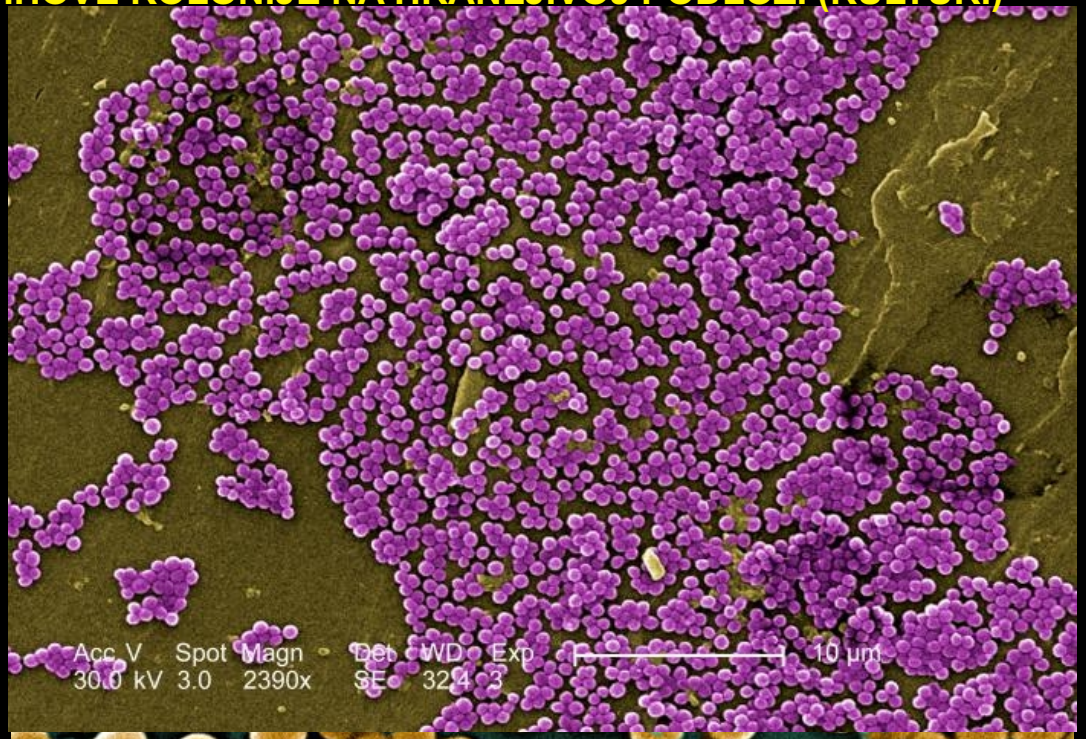
MIKROSKOPSKO BOJENJE PREPARATA PO GRAM-u RAZLIKUJE BAKTERIJE PREMA FIZIČKIM I HEMIJSKIM SVOJSTVIMA NJIHOVOG ĆELIJSKOG ZIDA.
KOD GRAM-POZITIVNIH BAKTERIJA PRISUTAN JE DEBLJI SLOJ PEPTIDOGLIKANA. STOGA OVE BAKTERIJE ZADRŽAVAJU MIKROSKOPSKU BOJU KRISTAL VIOLET, A GRAM-NEGATIVNE SE NE BOJE. NJIHOVO BOJENJE SE POSTIŽE NAKNADNO, TRETIRANJEM PREPARATA BOJAMA KAO ŠTO SU SAFRANIN ILI FUKSIN (fuchsine) ČIME SE DOBIJA RUŽIČASTO ILI CRVENO OBOJENJE.

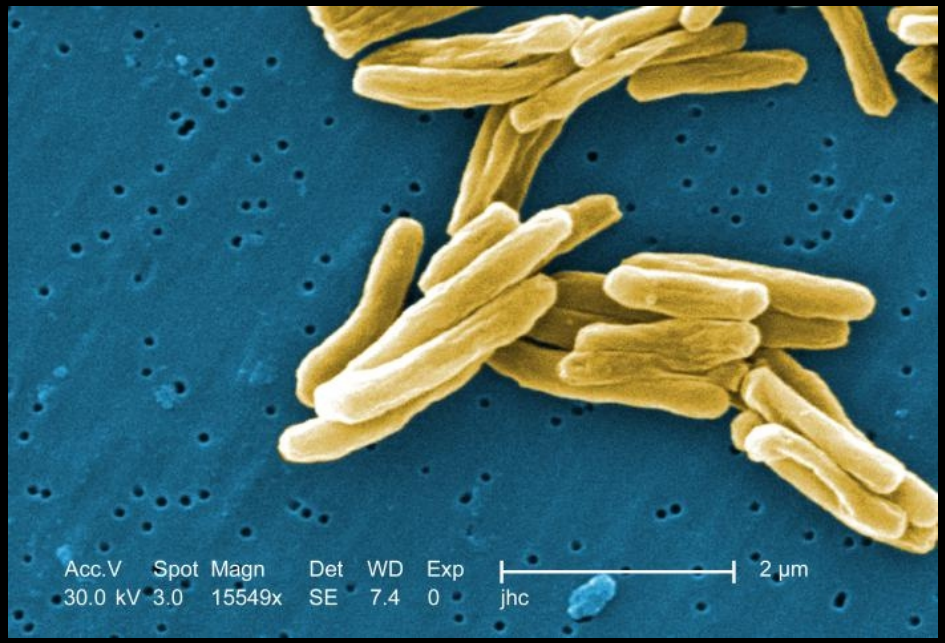


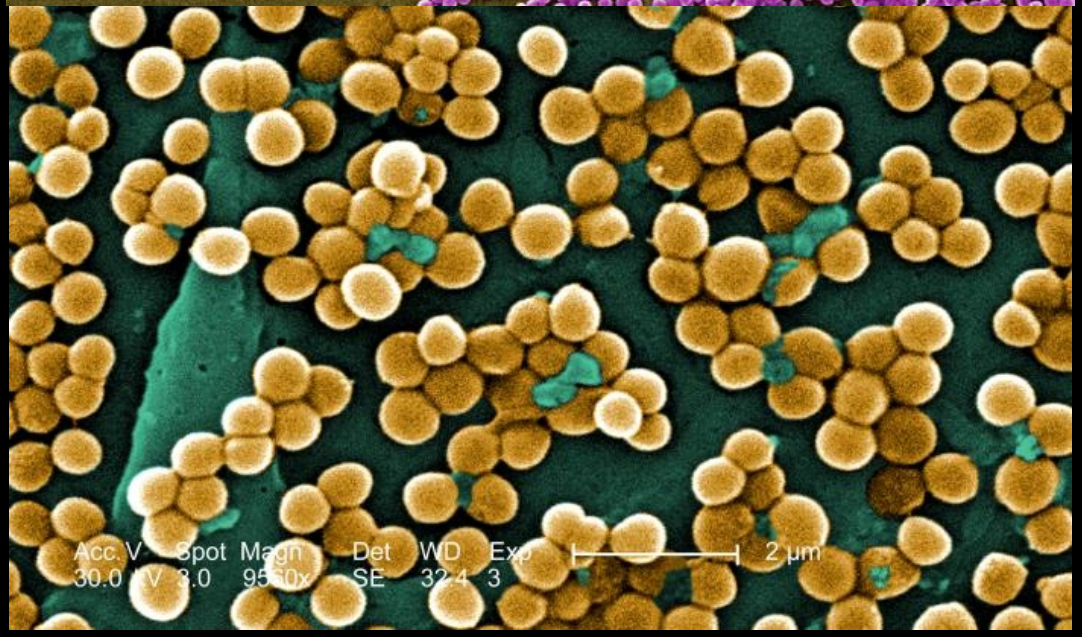
http://labmedx.ucsfmedicalcenter.org/labmanual/clinlab/micro_images/bacteriology/clinical%20gram%20stains/blood%20cultures/bc%20gs%20e%20coli%20bipolar%202_s.jpg

IZGLED RAZLIČITIH PATOGENIH BAKTERIJA POD SKENIRAJUĆIM ELEKTRONSKIM MIKROSKOPOM (BOJE SU DOBIJENE KOMPJUTERSKOM SIMULACIJOM) KAO I NJIHOVE KOLONIJE NA HRANLJIVOJ PODLOZI (KULTURI)









APROKSIMATIVNA PODELA VAŽNIJIH GRUPA ANTI-BAKTERIJSKIH PREPARATA PREMA STRUKTURI

ANTI-BAKTERIJSKI PREPARATI

β-LAKTAMI

1. PENICILINI (Penicillins)
2. CEFALOSPORINI (Cephalosporins)
3. KARBAPENEMI Carbapenems
4. MONOBAKTAMI (Monobactams)

AMINOGLIKOZIDI (Aminoglycoside)

GLIKOPEPTIDI (Glycopeptides)

MAKROCIKLIČNI LAKTONI (Macrolides)

LINKOSAMIDI (Lincosamides)

OXAZOLIDINONI (oxazolidinone)

POLIPEPTIDI (Polypeptides)

HINOLONI (quinolones)

NITRO-FURANI (Nitrofurans)

TETRACIKLINI (Tetracycline)

SULFONAMIDI (Sulfonamide)

OSTALI (VELIKA RAZNORODNA GRUPA)

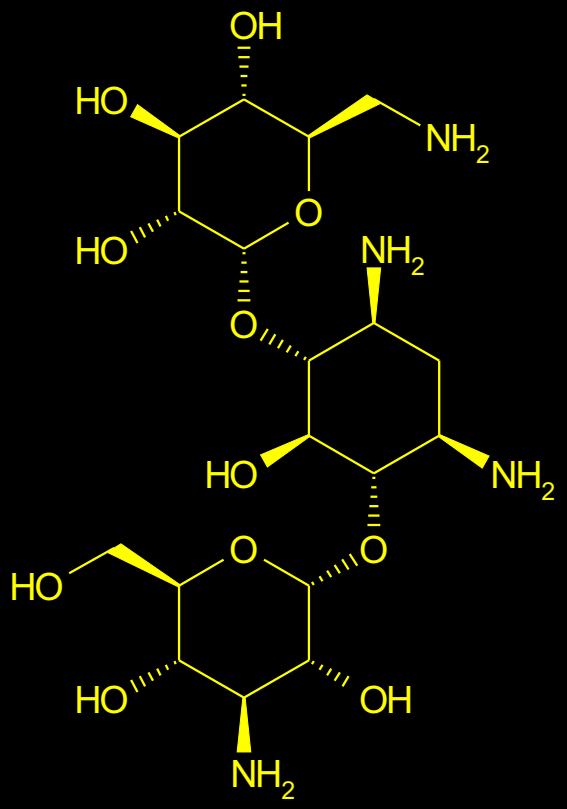
1. HLORAMFENIKOL (Chloramphenicol)
2. FUSIDINSKA K. (Fusidic acid)

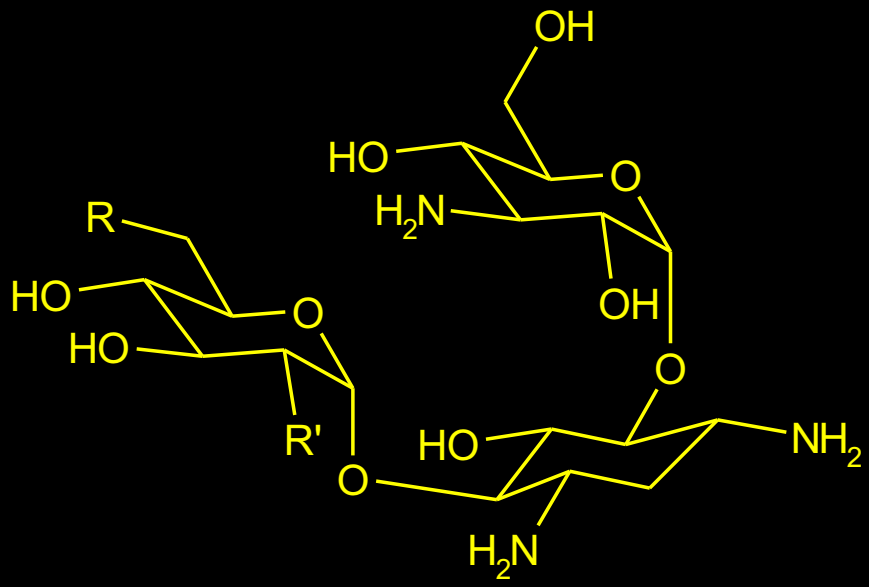
AMINOGLIKOZIDI

AMINO-GLIKOZIDI IMAJU OSNOVNU STRUKTURU RAZLIČITIH AMINO-ŠEĆERA. POSTAJU BIOSINTEZOM U POJEDINIM SOJEVIMA RODA *Streptomyces* KAO I *Micromonospora*. INDUSTRIJSKI SE DOBIJAJU ISKLJUČIVO MIKROBIOLOŠKI (FERMENTACIONIM PROCESIMA)

PRIMERI:

1. Kanamycin A



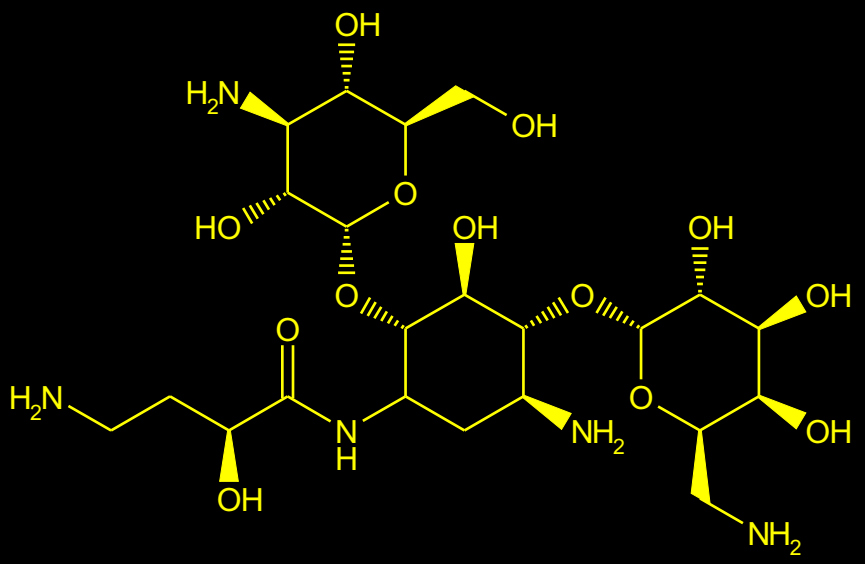


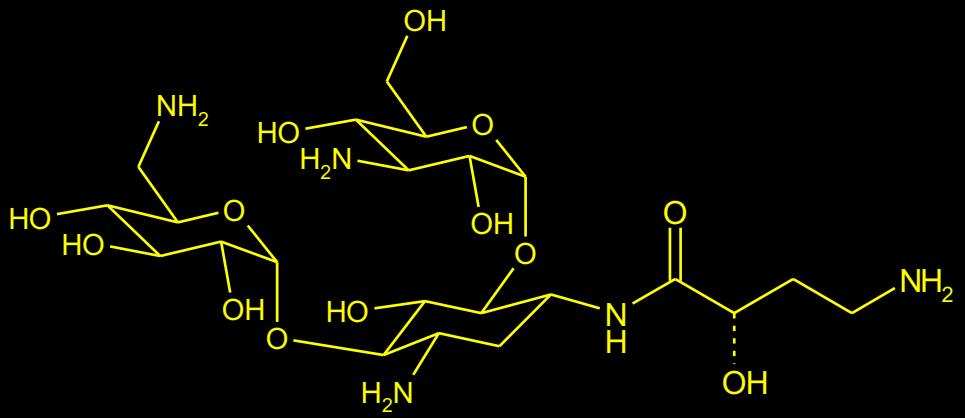
Kanamycin A
Kanamycin B
Kanamycin C

AKTIVNOST I PRIMENA: RAZLIČITI SOJEVI PATOGENIH BAKTERIJA. SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNI ZDRAVSTVENU ZAŠTITU.

AMINOGLIKOZIDI

PRIMERI: ***AMIKACIN***

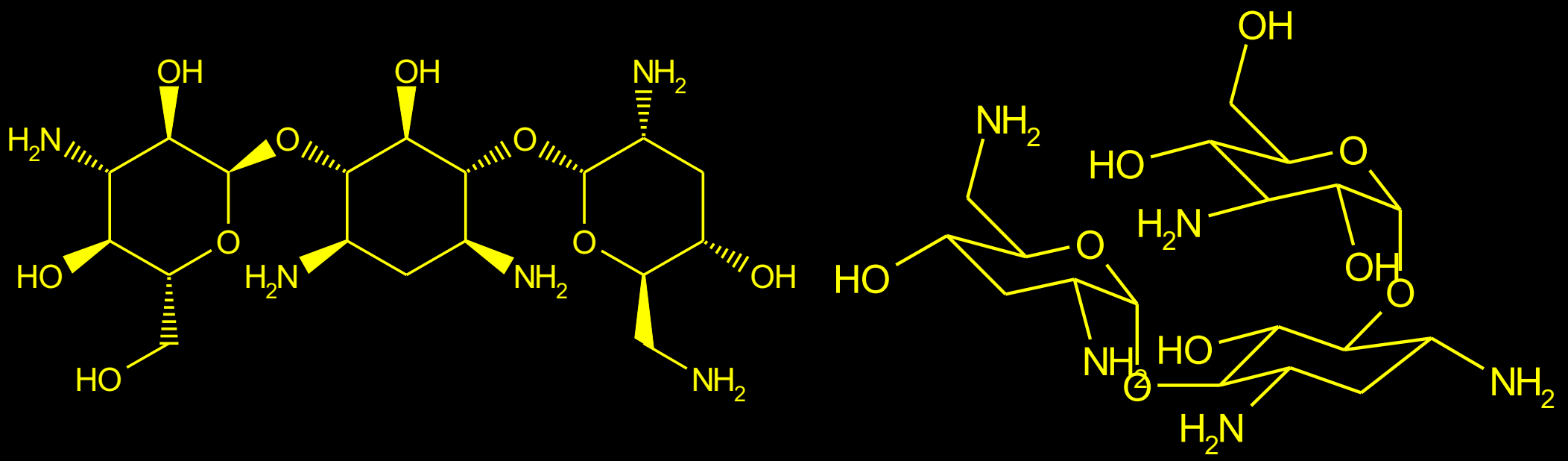




AKTIVNOST I PRIMENA: RAZLIČITI SOJEVI PATOGENIH BAKTERIJA. SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNI ZDRAVSTVENU ZAŠTITU.

AMINOGLIKOZIDI

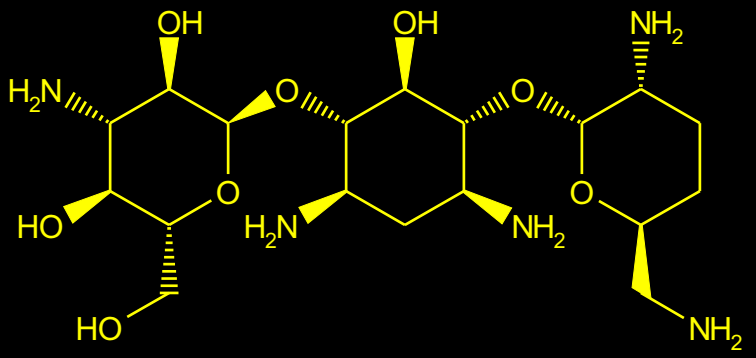
TOBRAMYCIN

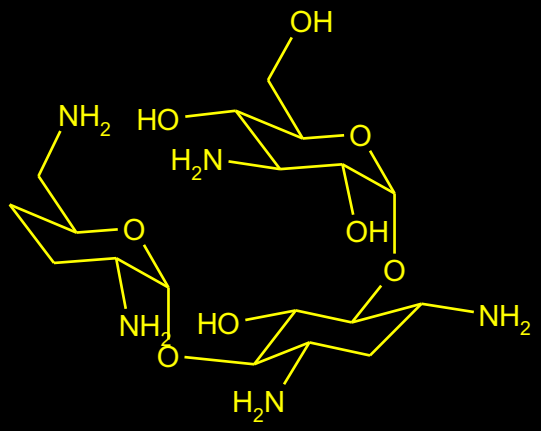


AKTIVNOST I PRIMENA: KAO I OSTALI AMINOLKIKOZIDI, NE RESORBUJE SE VEČ SE KORISTI U OBLIKU INJEKCIJA ILI NANOSI POVRŠINSKI. TAKOĐE SE I INHALIRA. U TOJ VARIJANTI KORISTI SE ZA SUZBIJANJE TEŠKIH INFEKCIJA RESPIRATORNIH PUTEVA IZAZVANIH PATOGENOM *Pseudomonas aeruginosa.*

AMINOGLIKOZIDI

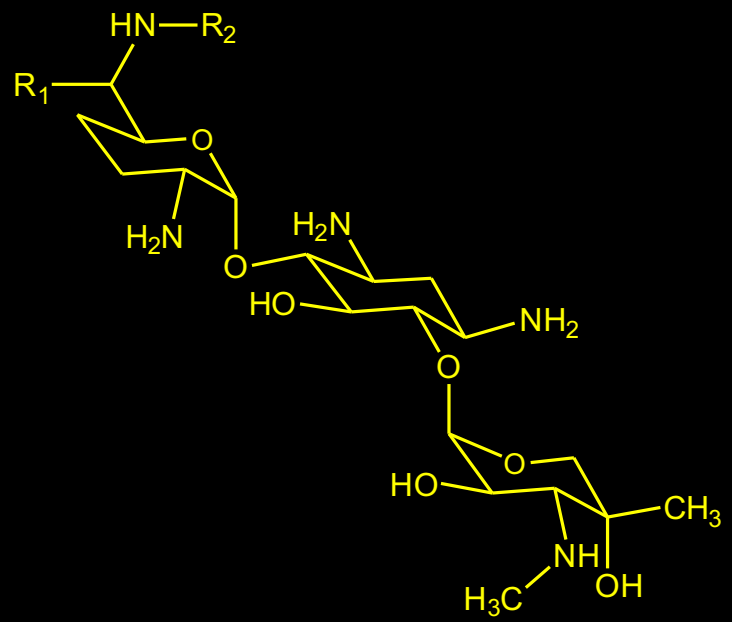
DIBEKACIN



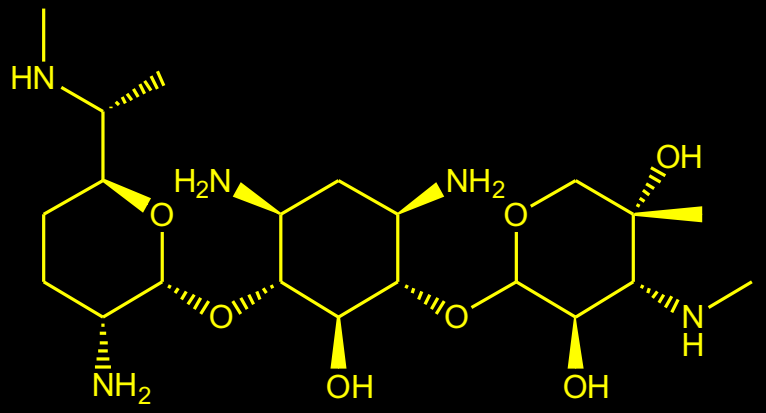


AKTIVNOST I PRIMENA: POLUSINTETIČKI DERIVAT KANAMYCIN-a. KOD SOJEVA KOJI SU REZISTENTNI NA KANAMYCIN

AMINOGLIKOZIDI



GENTAMICIN C1

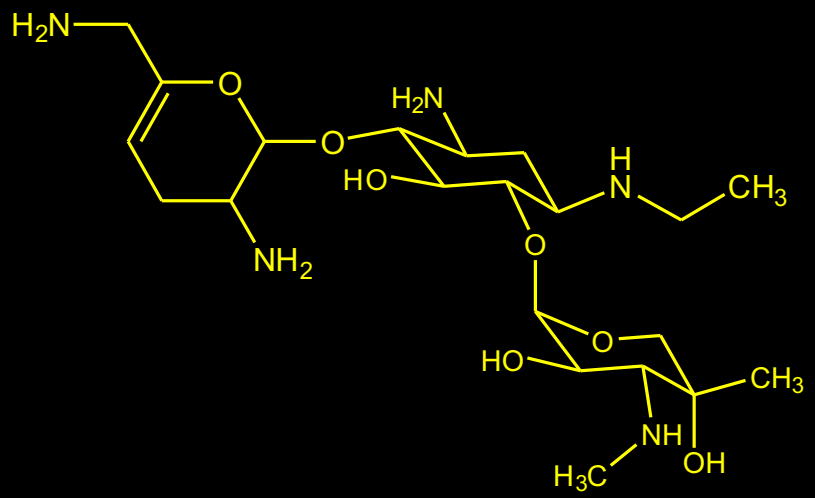


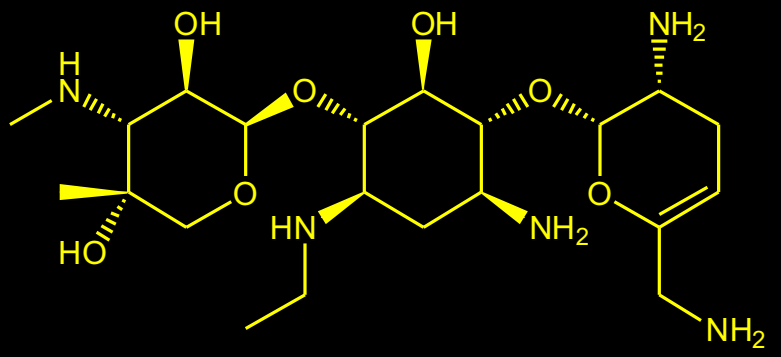
Gentamicin C_1	$R_1 = R_2 = CH_3$
Gentamicin C_2	$R_1 = CH_3$, $R_2 = H$
Gentamicin C_{1a}	$R_1 = R_2 = H$

AKTIVNOST I PRIMENA: SASTOJI SE OD SMESA STRUKTURNO SRODNIH JEDINJENJA. U TERAPIJI RAZLIČITIH BAKTERIJSKIH INFEKCIJA, POSEBNO GRAM-NEGATIVNIH BAKTERIJA. POKAZUJE NEFROTOKSIČNOST ŠTO JE PROBLEM U KLINIČKOJ PRIMENI.

AMINOGLIKOZIDI

PRIMER: NETILMICIN

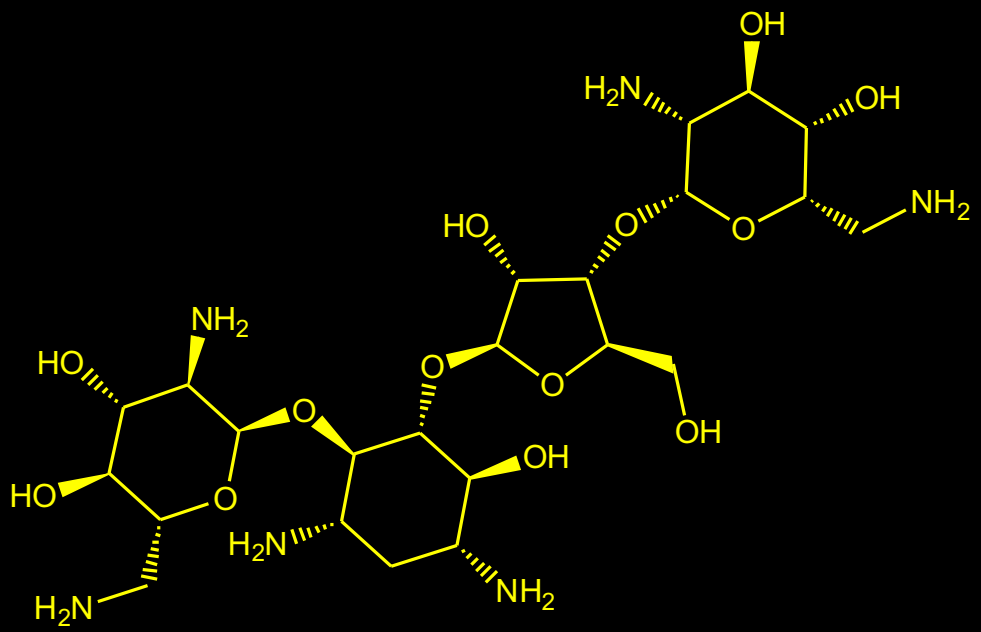


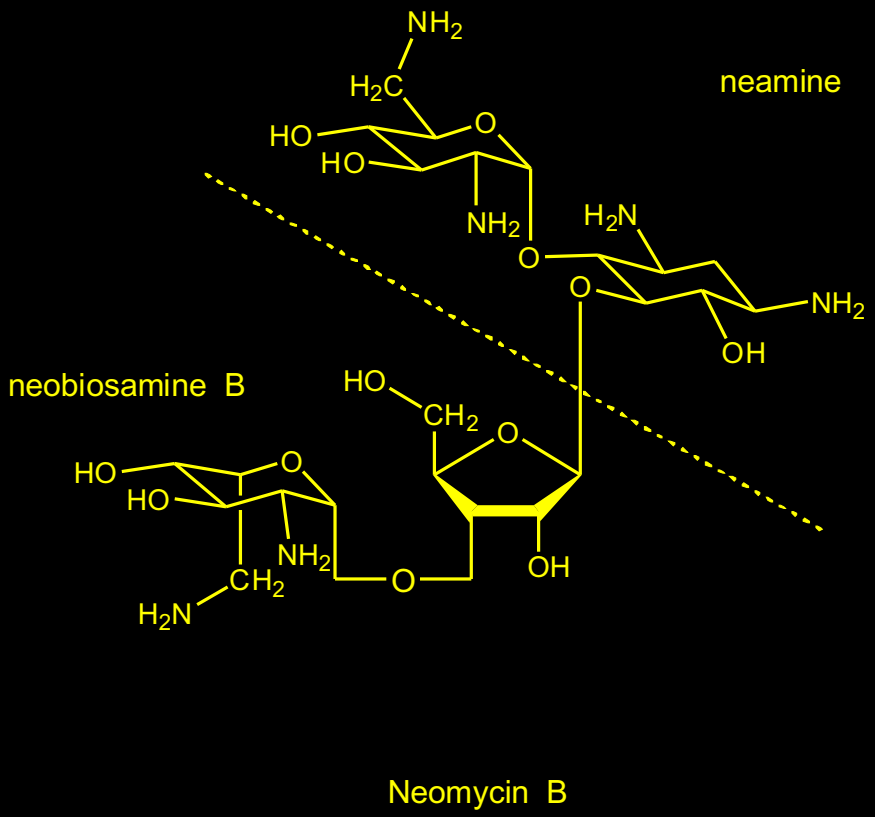


AKTIVNOST I PRIMENA: KAO I OSTALI AMINOLKIKOZIDI, NE RESORBUJE SE VEČ SE KORISTI U OBLIKU INJEKCIJA. KORISTI SE SAMO KOD TEŠKIH INFEKCIJA REZISTENTNIH NA GENTAMICIN

AMINOGLIKOZIDI

NEOMYCIN



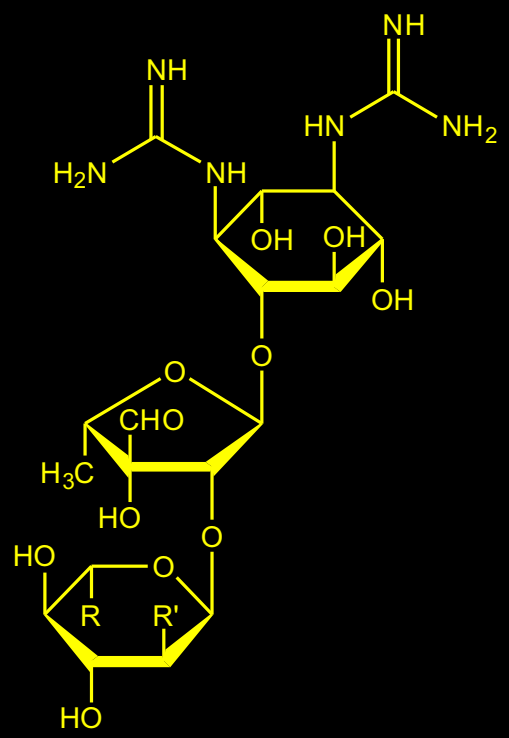


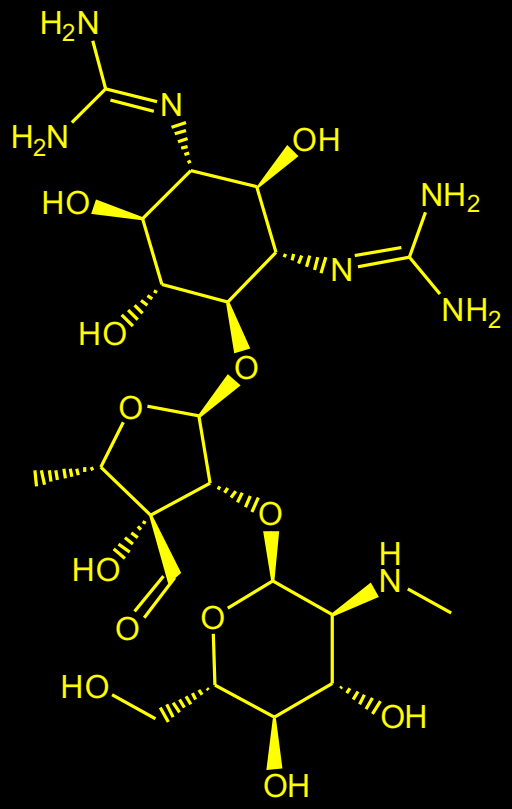
ANTIBIOTIČKI COMPLEKS SE SASTOJI OD NEOMYCIN-a A, B i C

AKTIVNOST I PRIMENA: EKSTENZIVNO SE PRIMENJUJE U OBLIKU MASTI, KAPI ZA OČI I SL. OTKRIVEN U LABORATORIJI Selman Waksman-a, KOJI JE DOBIO NOBELOVU NAGRADU ZA MEDICINU I FIZIOLOGIJU 1951. ZBOG SISTEMSKE TOKSIČNOSTI, KORISTI SE SAMO LOKALNO.

AMINOGLIKOZIDI

STREPTOMYCIN





AKTIVNOST I PRIMENA: PRVI OTKRIVENI PREDSTAVNIK AMINOGLIKOZIDNIH ANTIBIOTIKA. PRVI LEK KOJI JE EFIKASNO LEČIO TUBERKULOZU. POSTAJE BIOSINTEZOM U KULTURI AKTINOBAKTERIJE *Streptomyces griseus.* SPADA U KATEGORIJU LEKOVA KOJI DIREKTNO UBIJAJU BAKTERISKE ĆELIJE (BAKTERICID) ZA RAZLIKU OD ONIH KOJI IMAJU BAKTERIOSTATSKO DEJSTVO (SPREČAVAJU RAZMNOŽAVANJE). IMA IZRAŽENU SISTEMSKU TOKSIČNOST. SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

AMINOGLIKOZIDI REF.

Monograph Number: 5299
Title: Kanamycin
CAS Registry Number: 8063-07-8
Literature References: Antibiotic complex produced by *Streptomyces kanamyceticus* Okami & Umezawa from Japanese soil: Umezawa *et al., J. Antibiot.* **10A,** 181 (1957); **US 2931798** (1960). Comprised of three components, kanamycin A, the major component (usually designated as kanamycin) and kanamycins B and C, two minor congeners. Isoln and purification of kanamycins A and B and their salts: Johnson *et al.,* and Johnson, Hardcastle, **US 2936307** and **US 2967177** (1960, 1961 both to Bristol-Myers). Separation process: Rothrock, Putter, **US 3032547** (1962 to Merck & Co.). Prepn of kanamycin C: Murase *et al., J. Antibiot.* **14A,** 156 (1961). Studies on kanamycin B: Wakazawa *et al., ibid.* 180, 187. Structure of kanamycin A: Ogawa *et al., ibid.* **11A,** 169 (1958); Cron *et al., J. Am. Chem. Soc.* **80,** 4741 (1958). Structure of kanamycin B: Ito *et al., J. Antibiot.* **17A,** 189 (1964). Structure of kanamycin C: Murase, *ibid.* **14A,** 367 (1961). Abs config of kanamycin A: Hichens, Rinehart, *J. Am. Chem. Soc.* **85,** 1547 (1963); Umezawa *et al., Bull. Chem. Soc. Japan* **39,** 1244 (1966). Crystal structure of kanamycin A: Koyama *et al., Tetrahedron Letters* **1968,** 1875. Monograph: *Ann. N.Y. Acad. Sci.* **vol. 76,** Art. 2, pp 17-408 (1958). Synthesis of kanamycin A: Umezawa *et al., J. Antbiot.* **21,** 367 (1968); Nakajima *et al., Tetrahedron Letters,* **1968,** 623; Umezawa *et al., Bull. Chem. Soc. Japan* **42,** 533 (1969). Synthesis of kanamycin B: *eidem, J. Antibiot.* **21,** 424 (1968); *Bull. Chem. Soc. Japan* **42,** 537 (1969). Chemical conversion of kanamycin B to kanamycin C: S. Toda *et al., J. Antibiot.* **30,** 1002 (1977). Synthesis of kanamycin C: Umezawa *et al., Bull. Chem. Soc. Japan* **41,** 533 (1968); *J. Antibiot.* **21,** 162 (1968). Effects on protein synthesis: Suzuki *et al., ibid.* **23,** 99 (1970). Toxicity data (kanamycin A sulfate): Zel'tser *et al., Antibiotiki* **19,** 552 (1974). Comprehensive description: P. J. Claes *et al., Anal. Profiles Drug Subs.* **6,** 259-296 (1977).

Derivative Type: Kanamycin A
CAS Registry Number: 59-01-8
Additional Names: *O*-3-Amino-3-deoxy-α-D-glucopyranosyl-(1→6)-*O*-[6-amino-6-deoxy-α-D-glucopyranosyl-(1→4)]-2-deoxy-D-streptamine
Molecular Formula: $C_{18}H_{36}N_4O_{11}$
Molecular Weight: 484.50.
Percent Composition: C 44.62%, H 7.49%, N 11.56%, O 36.32%
Properties: Crystals from methanol + ethanol. $[\alpha]_{D24}$ +146° (0.1*N* H_2SO_4). LD_{50} i.v. in mice: 583 mg/kg (Wakazawa).
Optical Rotation: $[\alpha]_{D24}$ +146° (0.1*N* H_2SO_4)
Toxicity data: LD_{50} i.v. in mice: 583 mg/kg (Wakazawa)

Derivative Type: Kanamycin A sulfate
CAS Registry Number: 25389-94-0
Trademarks: Cantrex; Cristalomicina; Enterokanacin (Sidus); Kamycine (Bristol-Myers Squibb); Kamynex; Kanacedin; Kanamytrex (Basotherm); Kanasig; Kanatrol (Lusofarmaco); Kanicin; Kannasyn; Kantrex (Apothecon); Klebcil (SKB); Otokalixin; Resistomycin (Bayer); Kanescin (Torlan); Kanaqua (Andromaco)
Properties: (U.S.P. requires that kanamycin sulfate contains not less than 75% kanamycin A on an anhydr basis). Irregular prisms, dec over a wide range above 250°C. Freely sol in water. Practically insol in the common alcohols and nonpolar solvents. LD_{50} in mice: 20.7 g/kg orally; 1450 mg/kg i.p. (Zel'tser).
Toxicity data: LD_{50} in mice: 20.7 g/kg orally; 1450 mg/kg i.p. (Zel'tser)

Derivative Type: Kanamycin B
CAS Registry Number: 4696-76-8
Additional Names: Bekanamycin; aminodeoxykanamycin
Manufacturers' Codes: NK-1006
Molecular Formula: $C_{18}H_{37}N_5O_{10}$
Molecular Weight: 483.51.
Percent Composition: C 44.71%, H 7.71%, N 14.48%, O 33.09%
Properties: Crystals, mp 178-182° (dec). $[\alpha]_{D18}$ +130° (c = 0.5 in water). $[\alpha]_{D21}$ +114° (c = 0.98 in water). Sol in water, formamide; slightly sol in chloroform, isopropyl alcohol. Practically insol in the common alcohols and nonpolar solvents. LD_{50} i.v. in mice: 136 mg/kg (Wakazawa).
Melting point: mp 178-182° (dec)
Optical Rotation: $[\alpha]_{D18}$ +130° (c = 0.5 in water); $[\alpha]_{D21}$ +114° (c = 0.98 in water)
Toxicity data: LD_{50} i.v. in mice: 136 mg/kg (Wakazawa)

Derivative Type: Kanamycin B sulfate
CAS Registry Number: 29701-07-3
Trademarks: Coltericin (Quimica Argentia); Kanendomycin (Meiji); Kanendos (Crinos)
Literature References: Pharmacokinetics: F. Di Nola *et al., Minerva Med.* **70,** 1803 (1979).

Derivative Type: Kanamycin C
CAS Registry Number: 2280-32-2
Molecular Formula: $C_{18}H_{36}N_4O_{11}$
Molecular Weight: 484.50.
Percent Composition: C 44.62%, H 7.49%, N 11.56%, O 36.32%
Properties: Crystals from methanol + ethanol, dec above 270°. $[\alpha]_{D20}$ +126° (H_2O). Sol in water; slightly sol in formamide. Practically insol in the common alcohols and nonpolar solvents.
Optical Rotation: $[\alpha]_{D20}$ +126° (H_2O)

Therap-Cat: Antibacterial.
Therap-Cat-Vet: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 404

Title: Amikacin

CAS Registry Number: 37517-28-5

CAS Name: *O*-3-Amino-3-deoxy-α-D-glucopyranosyl-(1→6)-*O*-[6-amino-6-deoxy-α-D-glucopyranosyl-(1→4)]-*N*1-[(2*S*)-4-amino-2-hydroxy-1-oxobutyl]-2-deoxy-D-streptamine

Additional Names: 1-*N*-[L(-)-4-amino-2-hydroxybutyryl]kanamycin A

Molecular Formula: $C_{22}H_{43}N_5O_{13}$

Molecular Weight: 585.60.

Percent Composition: C 45.12%, H 7.40%, N 11.96%, O 35.52%

Literature References: Semisynthetic aminoglycoside antibiotic derived from kanamycin A. Prepn: Kawaguchi *et al., J. Antibiot.* **25,** 695 (1972); H. Kawaguchi, T. Naito, **DE 2234315**; H. Kawaguchi *et al.,* **US 3781268** (both 1973 to Bristol-Myers). Biological formation from kanamycin A: L. M. Cappelletti, R. Spagnoli, *J. Antibiot.* **36,** 328 (1983). Microbiological evaluation: Price *et al., ibid.* **25,** 709 (1972). Pharmacokinetics: Cabana, Taggart, *Antimicrob. Ag. Chemother.* **3,** 478 (1973). *In vitro* studies: Yu, Washington, *ibid.* **4,** 133 (1973); Bodey, Stewart, *ibid.* 186. Pharmacology in humans: Bodey *et al., ibid.* **5,** 508 (1974). Toxicity studies: Fujisawa *et al., J. Antibiot.* **27,** 677 (1974). *Review:* K. A. Kerridge in *Pharmacological and Biochemical Properties of Drug Substances* **vol. 1,** M. E. Goldberg, Ed. (Am. Pharm. Assoc., Washington, DC, 1977) pp 125-153. Comprehensive description: P. M. Monteleone *et al., Anal. Profiles Drug Subs.* **12,** 37-71 (1983).

Properties: White crystalline powder from methanol-isopropanol, mp 203-204° (sesquihydrate). $[\alpha]_{D23}$ +99° (c = 1.0 in water). LD_{50} in mice of solns pH 6.6, pH 7.4 (mg/kg): 340, 560 i.v. (Kawaguchi).

Melting point: mp 203-204° (sesquihydrate)

Optical Rotation: $[\alpha]_{D23}$ +99° (c = 1.0 in water)

Toxicity data: LD_{50} in mice of solns pH 6.6, pH 7.4 (mg/kg): 340, 560 i.v. (Kawaguchi)

Derivative Type: Sulfate

CAS Registry Number: 39831-55-5

Trademarks: Amiglyde-V (Fort Dodge); Amikin (Bristol-Myers Squibb); Amiklin (Bristol-Myers Squibb); BB-K8 (Bristol-Myers Squibb); Biklin (Bristol-Myers Squibb); Lukadin (San Carlo); Mikavir (Salus); Novamin (Bristol-Myers Squibb); Pierami (Fournier)

Molecular Formula: $C_{22}H_{43}N_5O_{13}.2H_2SO_4$

Molecular Weight: 781.76.

Percent Composition: C 33.80%, H 6.06%, N 8.96%, O 42.98%, S 8.20%

Properties: Amorphous form, dec 220-230°. $[\alpha]_{D22}$ +74.75° (water).

Optical Rotation: $[\alpha]_{D22}$ +74.75° (water)

Therap-Cat: Antibacterial.

Therap-Cat-Vet: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 9567

Title: Tobramycin

CAS Registry Number: 32986-56-4

CAS Name: *O*-3-Amino-3-deoxy-α-D-glucopyranosyl-(1→6)-*O*-[2,6-diamino-2,3,6-trideoxy-α-D-*ribo*-hexopyranosyl-(1→4)]-2-deoxy-D-streptamine

Additional Names: 4-[2,6-diamino-2,3,6-trideoxy-α-D-glycopyranosyl]-6-[3-amino-3-deoxy-α-D-glycopyranosyl]-2-deoxystreptamine; nebramycin factor 6; NF 6

Trademarks: Tobracin (Shionogi); Tobralex (Alcon); Tobramaxin (Alcon); Tobrex (Alcon)

Molecular Formula: $C_{18}H_{37}N_5O_9$

Molecular Weight: 467.51.

Percent Composition: C 46.24%, H 7.98%, N 14.98%, O 30.80%

Literature References: Aminoglycoside antibiotic; component of the ***nebramycin*** complex produced by *Streptomyces tenebrarius*. *See also* apramycin. Series of articles on isolation, separation and evaluation of the nebramycin complex: *Antimicrob. Ag. Chemother.* **1967,** 314-348. Elucidation of structure: K. F. Koch, J. A. Rhoades, *Antimicrob. Ag. Chemother.* **1970,** 309. Synthesis: Y. Takagi *et al., Bull. Chem. Soc. Japan* **49,** 3649 (1976); M. Tanabe *et al., Tetrahedron Letters* **1977,** 3607. Toxicology: J. S. Welles *et al., Toxicol. Appl. Pharmacol.* **22,** 332 (1972). Comprehensive description: A. K. Dash, *Anal. Profiles Drug Subs. Excip.* **24,** 579-613 (1996). Clinical trial in cystic fibrosis patients: B. W. Ramsey *et al., N. Engl. J. Med.* **340,** 23 (1999). Review of clinical experience: H. Lode, *Curr. Ther. Res.* **59,** 420-453 (1998).

Properties: Basic substance. Freely sol in water (1 in 1.5 parts). Very slightly sol in ethanol (1 in 2000 parts). Practically insol in chloroform, ether. $[\alpha]_{D20}$ +129° (c = 1 in water). LD_{50} in mice, rats (mg/kg): 441, 969 s.c. (Welles).

Optical Rotation: $[\alpha]_{D20}$ +129° (c = 1 in water)

Toxicity data: LD_{50} in mice, rats (mg/kg): 441, 969 s.c. (Welles)

Derivative Type: Sulfate

CAS Registry Number: 79645-27-5

Trademarks: Gernebcin (Lilly); Nebcin (Lilly); Nebicina (Lilly); Obracin (Lilly); Tobra (Lilly); Tobradistin (Dista)

Therap-Cat: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 3029

Title: Dibekacin

CAS Registry Number: 34493-98-6

CAS Name: *O*-3-Amino-3-deoxy-α-D-glucopyranosyl-(1→6)-*O*-[2,6-diamino-2,3,4,6-tetradeoxy-α-D-*erythro*-hexopyranosyl-(1→4)]-2-deoxy-D-streptamine

Additional Names: DKB; 3′,4′-dideoxykanamycin B; debecacin

Molecular Formula: $C_{18}H_{37}N_5O_8$

Molecular Weight: 451.51.

Percent Composition: C 47.88%, H 8.26%, N 15.51%, O 28.35%

Literature References: Semisynthetic analog of kanamycin, *q.v.,* effective against kanamycin-resistant bacteria. Prepn: Umezawa *et al., J. Antibiot.* **24,** 485 (1971); *eidem, Bull. Chem. Soc. Japan* **45,** 3624 (1972); Umezawa *et al.,* **DE 2135191** (1972 to Microbiochem. Res. Found.). Improved synthesis: T. Yoneta *et al., Bull. Chem. Soc. Japan* **52,** 1131 (1979). Antibacterial activity: A. G. Paradelis *et al., Antimicrob. Ag. Chemother.* **14,** 514 (1978). Metabolic studies: Shimizu, *Japan. J. Antibiot.* **26,** 522 (1973). Toxicology: Koeda *et al., ibid.* 221. Pharmacokinetics and acute toxicity: I. Komiya *et al., J. Pharmacobio.-Dyn.* **4,** 356 (1981). HPLC determn in serum: H. Kubo *et al., Antimicrob. Ag. Chemother.* **28,** 521 (1985). *Review:* P. Noone, *Drugs* **27,** 548-578 (1984).

Properties: $[\alpha]_{D20}$ +132° (c = 0.65). LD_{50} in mice (mg/kg): 61.0-68.0 i.v., 373.0-380.0 i.m. (Komiya).

Optical Rotation: $[\alpha]_{D20}$ +132° (c = 0.65)

Toxicity data: LD_{50} in mice (mg/kg): 61.0-68.0 i.v., 373.0-380.0 i.m. (Komiya)

Derivative Type: Sulfate

CAS Registry Number: 58580-55-5

Trademarks: Débékacyl (Bellon); Icacine (Bristol-Myers Squibb); Kappabi (Erbamont); Orbicin (Pfizer/Mack, Illert.); Panamicin (Gramon); Panimycin (Meiji); Tokocin (Meiji Seika)

Properties: White or yellowish-white powder. Slightly bitter taste. Sol in water. Practically insol in ethanol, acetone, and other organic solvents.

Therap-Cat: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 8905

Title: Streptomycin

CAS Registry Number: 57-92-1

CAS Name: *O*-2-Deoxy-2-(methylamino)-α-L-glucopyranosyl-(1→2)-*O*-5-deoxy-3-*C*-formyl-α-L-lyxofuranosyl-(1→4)-*N,N′*-bis(aminoiminomethyl)-D-streptamine

Additional Names: streptomycin A

Molecular Formula: $C_{21}H_{39}N_7O_{12}$

Molecular Weight: 581.57.

Percent Composition: C 43.37%, H 6.76%, N 16.86%, O 33.01%

Literature References: Antibiotic substance produced by the soil Actinomycete *Streptomyces griseus* (Krainsky) Waksman et Henrici (Fam. *Actinomycetaceae).* Isolation: Schatz *et al., Proc. Soc. Exp. Biol. Med.* **55,** 66 (1944). Production by aerobic fermentation and purification: Tishler in *Streptomycin,* Selman A. Waksman, Ed. (Williams & Wilkins, Baltimore, 1949) pp 32-54. Isoln and purification by ion exchange: Bartels *et al., Chem. Eng. Progr.* **54** (8), 49-51 (Aug. 1958); Bartels *et al.,* **US 2868779** (1959 to Olin Mathieson). Structure: Brink, Folkers, *J. Am. Chem. Soc.* **69,** 1234 (1947); Wolfrom *et al., ibid.* **76,** 3675 (1950). Total synthesis: Umezawa *et al., J. Antibiot.* **27,** 997 (1974). Mechanism of action: B. J. Wallace *et al.,* in *Antibiotics* **vol. 5**(pt. 1), F. E. Hahn, Ed. (Springer-Verlag, New York, 1979) pp 272-303. *Review:* Lemieux, Wolfrom, "The Chemistry of Streptomycin" in W. W. Pigman, M. L. Wolfrom, *Advan. Carbohyd. Chem.* **3,** 337-384 (1948). Comprehensive description: J. Mossa *et al., Anal. Profiles Drug Subs.* **16,** 507-609 (1986).

Properties: Streptomycin is usually available as the trihydrochloride, trihydrochloride-calcium chloride double salt, phosphate, or sesquisulfate, which occur as granules or powder. Odorless or nearly so, with a slightly bitter taste. Most salts are hygroscopic and deliquesce on exposure to air, but are not affected by air or light. The salts are very sol in water; but almost insol in alc, chloroform, ether. Solns are levorotatory.

Derivative Type: Trihydrochloride

Additional Names: Streptomycin hydrochloride

Molecular Formula: $C_{21}H_{39}N_7O_{12}.3HCl$

Molecular Weight: 690.96.

Percent Composition: C 36.50%, H 6.13%, N 14.19%, O 27.79%, Cl 15.39%

Properties: $[\alpha]_{D25}$ -84°. Solubilities as determined by Weiss *et al., Antibiot. & Chemother.* **7,** 374 (1957) in mg/ml at about 28°: water >20; methanol >20; ethanol 0.90; isopropanol 0.12; isoamyl alcohol 0.117; petr ether 0.02; carbon tetrachloride 0.042; ether 0.01.

Optical Rotation: $[\alpha]_{D25}$ -84°

Derivative Type: Trihydrochloride-calcium chloride double salt

Additional Names: Streptomycin hydrochloride-calcium chloride complex

Line Formula: $(C_{21}H_{39}N_7O_{12}.3HCl)_2CaCl_2$

Literature References: Prepn from the trihydrochloride: Peck, **US 2446102** (1948 to Merck & Co.).

Properties: Very hygroscopic, dec about 200°. $[\alpha]_{D25}$ -76°.

Optical Rotation: $[\alpha]_{D25}$ -76°

Derivative Type: Pantothenate

Trademarks: Streptothenat (Grünenthal)

Literature References: Prepn: **GB 771338** (1957 to Grünenthal). The commercial prepn may contain the sulfate.

Derivative Type: Sesquisulfate

CAS Registry Number: 3810-74-0

Additional Names: Streptomycin sulfate

Trademarks: AgriStrep (Merck & Co.); Streptobrettin (Norbrook); Vetstrep (Merck & Co.)

Molecular Formula: $(C_{21}H_{39}N_7O_{12})_2.3H_2SO_4$

Molecular Weight: 1457.39.

Percent Composition: C 34.61%, H 5.81%, N 13.46%, O 39.52%, S 6.60%

Properties: White to light gray or pale buff powder with faint amine-like odor. Solubilities as determined by Weiss *et al., loc. cit.,* in mg/ml at about 28°: water >20; methanol 0.85; ethanol 0.30; isopropanol 0.01; petr ether 0.015; carbon tetrachloride 0.035; ether 0.035.

Therap-Cat: Antibacterial (tuberculostatic).

Therap-Cat-Vet: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 4403
Title: Gentamicin
CAS Registry Number: 1403-66-3
CAS Name: Gentamycin
Literature References: Antibiotic complex produced by fermentation of *Micromonospora purpurea* or *M. echinospora* and variants thereof: M. J. Weinstein *et al., Antimicrob. Ag. Chemother.* **1963,** 1. Isoln, purification and characterization: J. P. Rosselet *et al., ibid.* 14. Industrial pats.: G. M. Luedemann, M. J. Weinstein; Charney, **US 3091572**; **US 3136704** (1963, 1964, both to Schering). Consists of three closely related components, gentamicins C_1, C_2, C_{1a}, and also gentamicin A which differs from the other members of the complex but is similar to kanamycin C, *q.v.* Separation of gentamicin C components: H. Maehr, C. P. Schaffner, *J. Chromatog.* **30,** 572 (1967); Wagman *et al., ibid.* **34,** 210 (1968). Structures contain 2-deoxystreptamine, *q.v.,* linked to two saccharide units, these being ***garosamine*** and a ***purpurosamine*** in the C series gentamicins. Structure studies: D. J. Cooper *et al., J. Chem. Soc. (C)* **1971,** 960, 2876, 3126. Structure of gentamicin A: H. Maehr, C. P. Schaffner, *J. Am. Chem. Soc.* **89,** 6787 (1967); **92** 1697 (1969). Sepn and structures of gentamicins A_1 to A_4: Nagabhushan *et al., J. Org. Chem.* **40,** 2830, 2835 (1975). Synthetic studies: W. Meyer zu Reckendorf, Bischof, *Ber.* **105,** 2546 (1972); M. Chmielewski *et al., Carbohyd. Res.* **70,** 275 (1979). Review of activity, toxicity and clinical pharmacology: J. Black *et al., Antimicrob. Ag. Chemother.* **1963,** 138-147. Comprehensive description: B. E. Rosenkrantz *et al., Anal. Profiles Drug Subs.* **9,** 295-340 (1980). Determn in serum by immunoassay: H. A. Holt *et al., J. Antimicrob. Chemother.* **34,** 747 (1994). Review of clinical use: S. B. Shrimpton *et al., ibid.* **31,** 599-606 (1993). Clinical effect on chloride transport in cystic fibrosis: M. Wilschanski *et al., Am. J. Respir. Crit. Care Med.* **161,** 860 (2000).
Properties: White amorphous powder, mp 102-108°. $[\alpha]_{D25}$ +146°. Freely sol in water; sol in pyridine, DMF, in acidic media with salt formation; moderately sol in methanol, ethanol, acetone. Practically insol in benzene, halogenated hydrocarbons.
Melting point: mp 102-108°
Optical Rotation: $[\alpha]_{D25}$ +146°
Derivative Type: Gentamicin C_1
CAS Registry Number: 25876-10-2
Molecular Formula: $C_{21}H_{43}N_5O_7$
Molecular Weight: 477.59.
Percent Composition: C 52.81%, H 9.07%, N 14.66%, O 23.45%
Properties: mp 94-100°. $[\alpha]_{D25}$ +158°.
Melting point: mp 94-100°
Optical Rotation: $[\alpha]_{D25}$ +158°
Derivative Type: Gentamicin C_2
CAS Registry Number: 25876-11-3
Molecular Formula: $C_{20}H_{41}N_5O_7$
Molecular Weight: 463.57.
Percent Composition: C 51.82%, H 8.91%, N 15.11%, O 24.16%
Properties: mp 107-124°. $[\alpha]_{D25}$ +160°.
Melting point: mp 107-124°
Optical Rotation: $[\alpha]_{D25}$ +160°
Derivative Type: Gentamicin C_{1a}
CAS Registry Number: 26098-04-4
CAS Name: *O*-3-Deoxy-4-*C*-methyl-3-(methylamino)-β-L-arabinopyranosyl-(1→6)-*O*-[2,6-diamino-2,3,4,6-tetradeoxy-α-D-*erythro*-hexopyranosyl-(1→4)]-2-deoxy-D-streptamine
Additional Names: gentamicin D
Molecular Formula: $C_{19}H_{39}N_5O_7$
Molecular Weight: 449.54.
Percent Composition: C 50.76%, H 8.74%, N 15.58%, O 24.91%

Derivative Type: Gentamicin A
CAS Registry Number: 13291-74-2
CAS Name: *O*-2-Amino-2-deoxy-α-D-glucopyranosyl-(1→4)-*O*-[3-deoxy-3-(methylamino)-α-D-xylopyranosyl-(1→6)]-2-deoxy-D-streptamine
Molecular Formula: $C_{18}H_{36}N_4O_{10}$
Molecular Weight: 468.50.
Percent Composition: C 46.15%, H 7.74%, N 11.96%, O 34.15%

Derivative Type: Hydrochloride
Properties: mp 194-209°. $[\alpha]_{D25}$ +113°. Freely sol in water, methanol; slightly in ether. Practically insol in other organic solvents.
Melting point: mp 194-209°
Optical Rotation: $[\alpha]_{D25}$ +113°
Derivative Type: C complex sulfate
CAS Registry Number: 1405-41-0
Trademarks: Alcomicin (Alcon); Cidomycin (HMR); Duragentam (Durachemie); Garamycin (Schering); Garasol (Schering); Genoptic (Allergan); Gentacin (Schering); Gentak (Akorn); Gentalline (Schering); Gentalyn (Schering); Gentibioptal (Farmila); Genticin (Roche); Gentocin (Schering); Gentogram (Merck-Clévenot); Gent-Ophtal (Winzer); Gentrasul (Bausch & Lomb); Lugacin (Lagap); Nichogencin (Nicholas); Ophtagram (Chauvin); Pangram (Virbac); Refobacin (Merck KGaA); Septopal (Merck KGaA); Sulmycin (Essex); U-gencin (Upjohn)
Properties: White, hygroscopic powder, mp 218-237°. $[\alpha]_{D25}$ +102°. Sol in ethylene glycol, formamide. LD_{50} in mice (mg base/kg): 430 i.p.; 485 s.c.; 75 i.v.; >9050 orally (Black).
Melting point: mp 218-237°
Optical Rotation: $[\alpha]_{D25}$ +102°
Toxicity data: LD_{50} in mice (mg base/kg): 430 i.p.; 485 s.c.; 75 i.v.; >9050 orally (Black)
Therap-Cat: Antibacterial.
Therap-Cat-Vet: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 6482
Title: Neomycin
CAS Registry Number: 1404-04-2
Trademarks: Mycifradin (Upjohn); Fradiomycin; Neomin; Neolate; Neomas; Pimavecort (Mycofarm); Vonamycin Powder V
Literature References: Antibiotic complex composed of neomycins A, B and C. Produced by *Streptomyces fradiae:* Waksman, Lechevalier, *Science* **109,** 305 (1949); Waksman *et al., J. Clin. Invest.* **28,** 934 (1949); Swart *et al., ibid.* 1045; Waksman, Lechevalier, **US 2799620** (1957). Purification: Jackson, **US 2848365** (1958 to Upjohn); Haak, **US 3108996** (1963 to Upjohn). Recovery: Miller, **US 3005815** (1961 to Merck & Co.); Moses, **US 3022228** (1962 to Penick); **GB 945475** (1964 to O.W.G. Chemie). Characterization: Peck *et al., J. Am. Chem. Soc.* **71,** 2590 (1949); Regna, Murphy, *ibid.* **72,** 1045 (1950); Dutcher *et al., ibid.* **73,** 1384 (1951). Structure of neomycins B and C: K. L. Rinehart *et al., ibid.* **79,** 4567, 4568 (1957); *ibid.* **84,** 3216, 3218 (1962). Abs config of neomycin C: M. Hichens, K. L. Rinehart, *ibid.* **85,** 1547 (1963). Total synthesis of neomycin C: S. Umewaza, Y. Nishimura, *J. Antibiot.* **30,** 189 (1977); S. Umewaza *et al., Bull. Chem. Soc. Japan* **53,** 3259 (1980); of neomycin B: T. Usui, S. Umezawa, *J. Antibiot.* **40,** 1464 (1987). Monographs: S. A. Waksman, *Neomycin* (Rutgers Univ. Press, New Brunswick, N. J., 1953) 219 pp; K. L. Rinehart, Jr., *The Neomycins and Related Antibiotics* (Wiley, New York, 1964) 137 pp. Comprehensive description: W. F. Heyes, *Anal. Profiles Drug Subs.* **8,** 399-488 (1979).
Properties: Neomycin complex is an amorphous base sol in water, methanol and acidified alcohol. Practically insol in common organic solvents. Solns up to 250 mg/ml H_2O may be prepared.

Derivative Type: Neomycin A *see* Neamine

Derivative Type: Neomycin B
CAS Registry Number: 119-04-0
Additional Names: Antibiotique EF 185; framycetin
Trademarks: Enterfram; Framygen; Actilin
Molecular Formula: $C_{23}H_{46}N_6O_{13}$
Molecular Weight: 614.64.
Percent Composition: C 44.94%, H 7.54%, N 13.67%, O 33.84%
Properties: Identity of neomycin B and framycetin: K. L. Rinehart *et al., ibid.* **82,** 3938 (1960). Yields on hydrolysis neamine and ***neobiosamine B***. Structure of neobiosamine B: K. L. Rinehart *et al., J. Am. Chem. Soc.* **82,** 2970 (1960).

Derivative Type: Neomycin B hydrochloride
CAS Registry Number: 25389-99-5
Properties: Amorphous white powder. $[\alpha]_{D20}$ +57° (H_2O). Soly in mg/ml at ~28°: water 15.0; methanol 5.7; ethanol 0.65; isopropanol 0.05; isoamyl alcohol 0.33; cyclohexane 0.06; benzene 0.03. Practically insol in acetone, ether, other organic solvents. For additional soly data *see* Weiss *et al., Antibiot. & Chemother.* **7,** 374 (1957).
Optical Rotation: $[\alpha]_{D20}$ +57° (H_2O)

Derivative Type: Neomycin B sulfate
CAS Registry Number: 1405-10-3
Trademarks: Biosol (Biokema); Bykomycin (Byk-Gulden); Endomixin (Lusofarmaco); Fraquinol; Myacine; Neosulf; Neomix (Tuco); Neobrettin (Norbrook); Nivemycin (Boots); Soframycin (HMR); Tuttomycin
Properties: Amorphous white powder. Practically tasteless. $[\alpha]_{D20}$ +54° (c = 2 in H_2O). Soly in mg/ml at ~28°: water 6.3; methanol 0.225; ethanol 0.095; isopropanol 0.082; isoamyl alcohol, 0.247; cyclohexane 0.08; benzene 0.05. Practically insol in acetone, ether, chloroform. Aq solns are fairly stable at pH 2 to 9. Highly purified prepns are very stable to alkali and unstable to acids. Refluxing with barium hydroxide for 18 hrs showed no loss of activity. Boiling with mineral acids yields an aldehyde, characterized as furfural, and an organic base.
Optical Rotation: $[\alpha]_{D20}$ +54° (c = 2 in H_2O)

Derivative Type: Neomycin C
CAS Registry Number: 66-86-4
Molecular Formula: $C_{23}H_{46}N_6O_{13}$
Molecular Weight: 614.64.
Percent Composition: C 44.94%, H 7.54%, N 13.67%, O 33.84%
Properties: Yields on hydrolysis neamine and ***neobiosamine C***. Structure of neobiosamine C: K. L. Rinehart, P. Woo, *J. Am. Chem. Soc.* **80,** 6463 (1958).

Therap-Cat: Antibacterial.
Therap-Cat-Vet: Antibacterial.

AMINOGLIKOZIDI REF.

Monograph Number: 6504

Title: Netilmicin

CAS Registry Number: 56391-56-1

CAS Name: *O*-3-Deoxy-4-*C*-methyl-3-(methylamino)-β-L-arabinopyranosyl-(1→6)-*O*-[2,6-diamino-2,3,4,6-tetradeoxy-α-D-*glycero*-hex-4-enopyranosyl-(1→4)]-2-deoxy-*N*1-ethyl-D-streptamine

Additional Names: (2*S*-*cis*)-4-*O*-[3-amino-6-(aminomethyl)-3,4-dihydro-2*H*-pyran-2-yl]-2-deoxy-6-*O*-[3-deoxy-4-*C*-methyl-3-(methylamino)-β-L-arabinopyranosyl]-*N*1-ethyl-D-streptamine; 1-*N*-ethylsisomicin

Manufacturers' Codes: Sch-20569

Molecular Formula: $C_{21}H_{41}N_5O_7$

Molecular Weight: 475.58.

Percent Composition: C 53.04%, H 8.69%, N 14.73%, O 23.55%

Literature References: Broad spectrum semi-synthetic aminoglycoside antibiotic, related to sisomicin, *q.v.* Prepn: M. J. Weinstein *et al.,* **DE 2437160** (1975 to Sherico); J. J. Wright, **US 4029882** (1977 to Schering); J. J. Wright *et al.,* **US 4002742** (1977 to Schering). Structure and synthesis: J. J. Wright, *Chem. Commun.* **1976,** 206. Biological activity: G. H. Miller *et al., Antimicrob. Ag. Chemother.* **10,** 827 (1976). Radioimmunoassay: A. Broughton *et al., Clin. Chem.* **24,** 717 (1978). Pharmacology: W. Raab, *Adv. Clin. Pharmacol.* **15,** 91 (1978); I. Trestman *et al., Antimicrob. Ag. Chemother.* **13,** 832 (1978). Metabolism and pharmacokinetics: J. C. Pechere *et al., Clin. Pharmacol. Ther.* **23,** 677 (1978); R. E. Brummett *et al., Arch. Otolaryngol.* **104,** 579 (1978). Clinical studies: J. Klastersky *et al., Antimicrob. Ag. Chemother.* **12,** 503 (1977); A. P. Panwalker *et al., ibid.* **13,** 170 (1978). Toxicity studies: L. Albiero *et al., Arch. Int. Pharmacodyn. Ther.* **233,** 343 (1978); F. C. Lust, *J. Int. Med. Res.* **6,** 286 (1978). *Review:* P. Noone, *Drugs* **27,** 548-578 (1984).

Properties: $[\alpha]_{D26}$ +164° (c = 3 in water). LD_{50} in mice (mg/kg): 40 i.v.; 125 i.p.; 175 s.c. (Miller).

Optical Rotation: $[\alpha]_{D26}$ +164° (c = 3 in water)

Toxicity data: LD_{50} in mice (mg/kg): 40 i.v.; 125 i.p.; 175 s.c. (Miller)

Derivative Type: Sulfate

CAS Registry Number: 56391-57-2

Trademarks: Certomycin (Essex); Netillin (Schering); Netilyn (Schering); Netromicine (Schering); Netromycin (Schering); Nettacin (Schering); Vectacin (Schering); Zetamicin (Menarini)

Molecular Formula: $(C_{21}H_{41}N_5O_7)_2.5H_2SO_4$

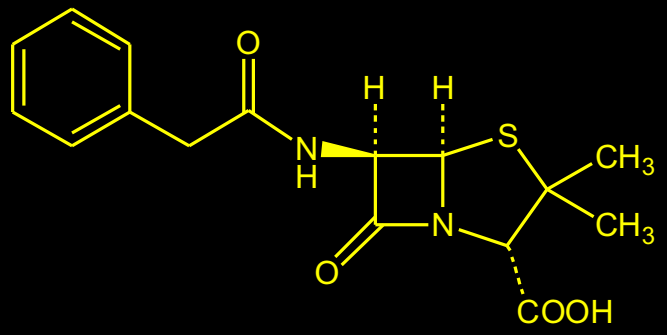
Molecular Weight: 1441.56.

Percent Composition: C 34.99%, H 6.43%, N 9.72%, O 37.73%, S 11.12%

Therap-Cat: Antibacterial.

β-LAKTAMI
1. PENICILINI (Penicillins)

BENZYLPENICILLIN; PENICILLIN G



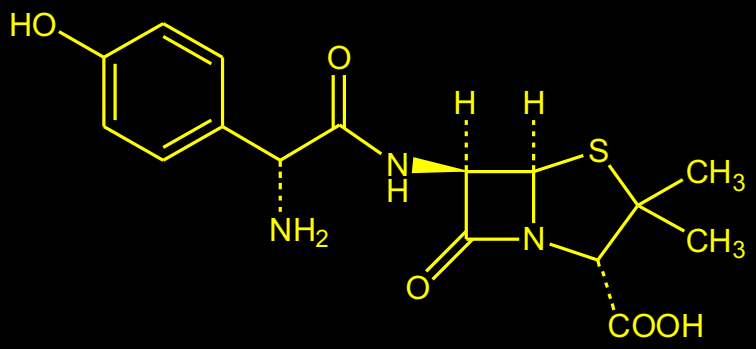
AKTIVNOST I PRIMENA: BENZILPENICILIN ILI PENICILLIN G. ANTIBIOTIK RELATIVNO USKOG SPEKTRA DEJSTVA. DAJE SE U OBLIKU INJEKCIJA, KOD INFEKCIJA KAO ŠTO SU MENANGITIS, UPALA PLUĆA, SEPSA.

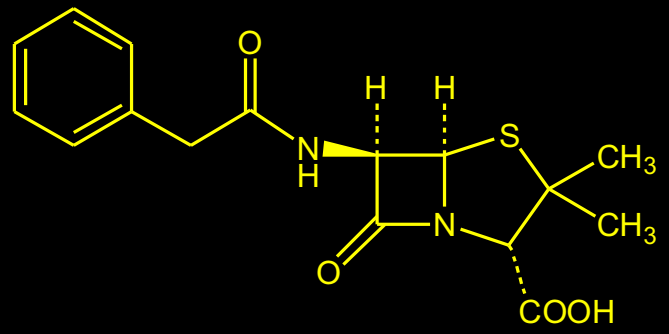
PRVI POZNATI ANTIBIOTIK IZ KLASE β-LAKTAMA (*A. Fleming, Brit. J. Exp. Pathol.* ***10,*** *226 (1929).*) POSTAJE BIOSINTEZOM U ORGANIZMIMA PLESNI IZ RODA *Penicillium*.

SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

β-LAKTAMI
1. PENICILINI (Penicillins)

AMOXICILLIN





PENICILLIN G

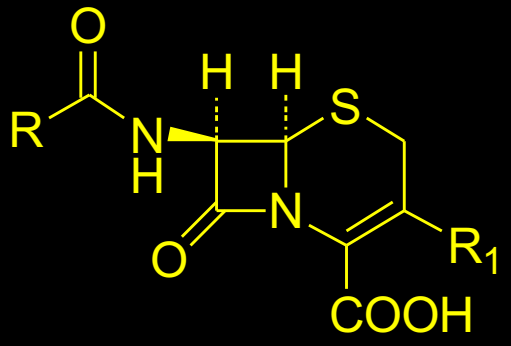
AKTIVNOST I PRIMENA: POLUSINTETIČKI DERIVAT PENICILLIN-a G. IMA UMERENO ŠIROK SPEKTAR DEJSTVA, NA POJEDINE GRAM-POZITIVNE I GRAM NEGATIVNE BAKTERIJE. POJAVIO SE NA TRŽIŠTU POSLE 1970. LAKO GA RAZLAŽE ENZIM β-LAKTAMAZA, KOJI LUČE REZISTENTNI SOJEVI BAKTERIJA. ČESTO SE DAJE U KOMBINACIJI SA INHIBITOROM TOG ENZIMA (clavulanic acid).

SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

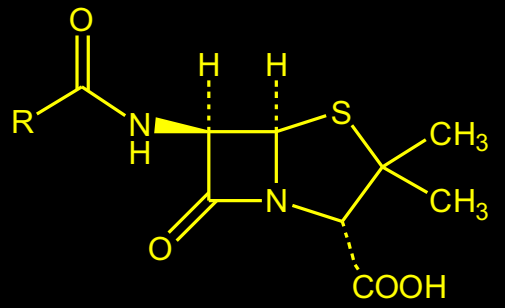
β-**LAKTAMI**

2. CEFALOSPORINI (Cephalosporins **)**

PRVOBITNO IZOLOVANI METABOLIT PLESNI Acremonium, CEPHALOSPORIN C. (1953.)



OPŠTA STRUKTURA CEFALOSPORINA



TIPIČNA STRUKTURA PENICILINSKIH ANTIBIOTIKA

AKTIVNOST I PRIMENA: KLASA β-LAKTAMSKIH ANTIBIOTIKA KOJI POSTAJU U KULTURI PLESNI *Acremonium*, RANIJE POZNATOJ KAO *Cephalosporium*.

POSTOJI VEĆ BROJ EFIKASNIH β-LAKTAMSKIH ANTIBIOTIKA KOJI SU DOBIJENI PARCIJALNOM SINTEZOM IZ OSNOVNOG JEDINJENJA KOJE JE FUNGALNI METABOLIT. ZAVISNO OD SPEKTRA DEJSTVA, DELE SE NA I, II, III, IV i V GENERACIJU.

GENERACIJA I JE AKTIVNA UGLAVNOM PREMA GRAM-POZITIVNIM BAKTERIJAMA, A KASNIJE GENERACIJE POKAZUJU VEĆU AKTIVNOST I U ODNOSU NA GRAM-NEGATIVNE BAKTERIJE

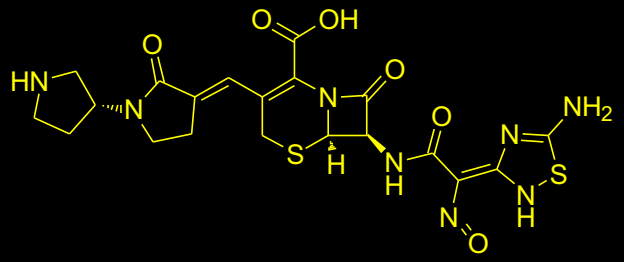
β-LAKTAMI

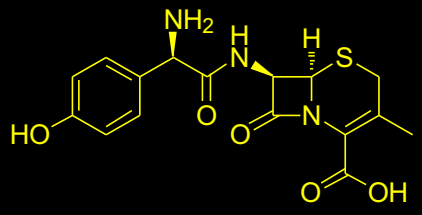
2. CEFALOSPORINI (Cephalosporins)

STRUKTURE POJEDINIH POLU-SINTETIČKIH CEFALOSPORINA RAZLIČITIH GENERCIJA. SVE SE DOBIJAJU PARCIJALNOM SINTEZOM IZ FUNGALNOG METABOLTA KAO PREKURSORA.

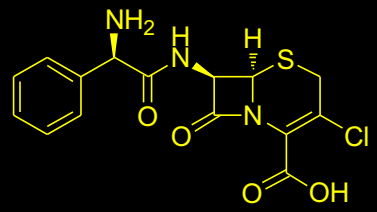
Cefacetrile

CEFROXADINE

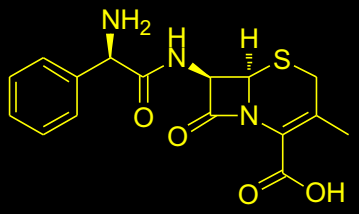




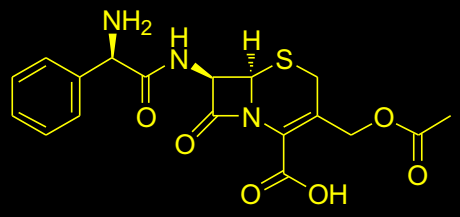
CEFADOXIL



CEFACLOR



CEPHALEXIN



CEFALOGLYCIN

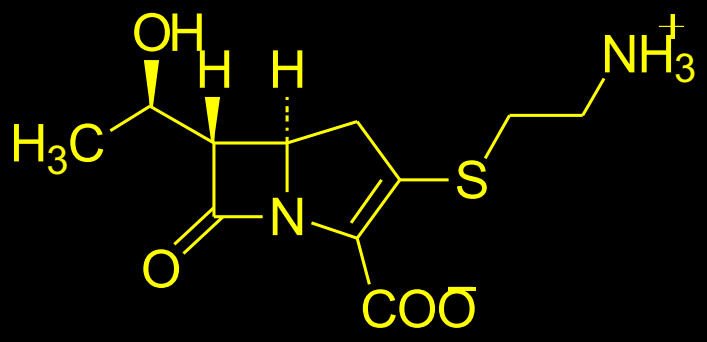
CEFTOBIPROL (Ceftobiprole), EKSPERIMENTALNI CEFALOSPORINSKI ANTIBIOTIK PETE GENERACIJE.
IMA ŠIROKO I EFIKASNO DEJSTVO.
U FAZI ISPITIVANJA I REGISTRACIJE.
ODOBREN U EVROPSKOJ UNIJI.

Kollef MH (December 2009). "New antimicrobial agents for methicillin-resistant Staphylococcus aureus". Crit Care Resusc 11 (4): 282–6.

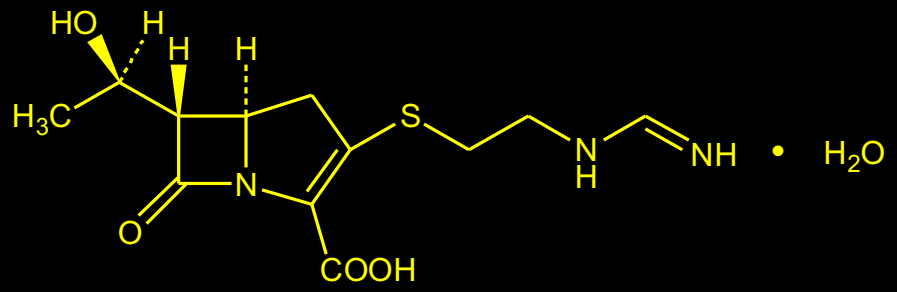
β-LAKTAMI

3. KARBAPENEMI (Carbapenems)

KLASA β-LAKTAMSKIH ŠIROKOG SPEKTRA DEJSTVA. ZBOG SVOJE STRUKTURE VEOMA SU REZISTENTNI NA VEĆINU β-LAKTAMAZA. SVI SAVREMENI LEKOVI IZ OVE KATEGORIJE SU POLU-SINTETIČKA JEDINJENJA KOJA SE IZVODE IZ THIENAMYCIN-a, PRIRODNOG METABOLITA BAKTERIJSKOG SOJA *Streptomyces cattleya.*

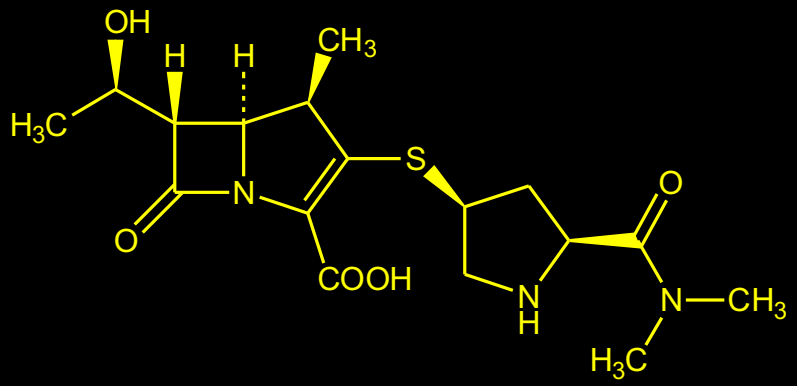


THIENAMYCIN, β-LAKTAMSKI ANTIBIOTIK KOJI JE PRIRODNI METABOLIT BAKTERIJSKOG SOJA *Streptomyces cattleya*



IMIPENEM (PRIMAXIN)

INTRAVENOZNI β-LAKTAMSKI ANTIBIOTIK, PRVI U KLASI KARBAPENEM-a (1980).EFIKASAN PROTIV MNOGIH GRAM-NEGATIVNIH BAKTERIJA KOJE POKAZUJU VIŠESTRUKU REZISTENCIJU PREMA DRUGIM LEKOVIMA.



MEROPENEM

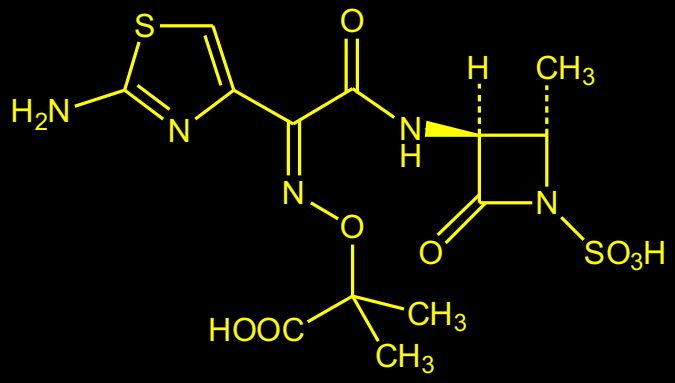
INTRAVENOZNI β-LAKTAMSKI ANTIBIOTIK, U UPOTREBI OD (1996). POKAZUJE ULTRA ŠIROK SPEKTAR DEJSTVA.

β-LAKTAMI

4. MONOBAKTAMI (MONOBACTAMS)

MONOBAKTAMI. IMAJU SAMO NE-KONDENZOVANI β-LAKTAMSKI PRSTEN.

DELUJU SAMO NA GRAM-NEGATIVNE BAKTERIJE (*Pseudomonas* I DR). JEDINI KOMERCIJALNI PREPARAT IZ OVE KATEGORIJE JE AZTREONAM.



Monograph Number: 7165

Title: Penicillin G

CAS Registry Number: 61-33-6

CAS Name: (2*S*,5*R*,6*R*)-3,3-Dimethyl-7-oxo-6-[(phenylacetyl)amino]-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid

Additional Names: benzylpenicillin; benzylpenicillinic acid; penicillin II

Molecular Formula: C16H18N2O4S

Molecular Weight: 334.40.

Percent Composition: C 57.47%, H 5.43%, N 8.38%, O 19.14%, S 9.59%

Literature References: Discovery of antibiotic substance produced by *Penicillium* sp: A. Fleming, *Brit. J. Exp. Pathol.* **10,** 226 (1929). Preliminary isoln: P. W. Clutterbuck *et al., Biochem. J.* **26,** 1907 (1932); and chemotherapeutic properties: E. Chain *et al., Lancet* **2,** 226 (1940); E. P. Abraham *et al., ibid.* **2,** 177 (1941). Review of early studies: E. Chain, *Ann. Rev. Biochem.* **17,** 657-704 (1948); H. T. Clarke *et al., The Chemistry of Penicillin* (Princeton Univ. Press, 1949) 1094 pp. Crystal structure: D. C. Hodgkin, *Advancement Sci.* **6,** 85 (1949). Fermentation process: A. L. Demain, N. L. Somerson, **US 3024169** (1962 to Merck & Co.). Total synthesis: J. C. Sheehan, K. R. Henery-Logan, *J. Am. Chem. Soc.* **81,** 5838 (1959); R. A. Firestone *et al., J. Org. Chem.* **39,** 437 (1974). Review of clinical pharmacokinetics of penicillins: M. Barza, L. Weinstein, *Clin. Pharmacokinet.* **1,** 297 (1976). Comprehensive description of the potassium salt: J. Kirschbaum, *Anal. Profiles Drug Subs.* **15,** 427-507 (1987).

Properties: Amorphous white powder. [α]D +282° (ethanol). Sparingly sol in water. Sol in methanol, ethanol, ether, ethyl acetate, benzene, chloroform, acetone. Insol in petr ether.

Optical Rotation: [α]D +282° (ethanol)

Derivative Type: Sodium salt

CAS Registry Number: 69-57-8

Trademarks: Crystapen (Britannia); Penilevel (ERN)

Molecular Formula: C16H17N2NaO4S

Molecular Weight: 356.38.

Percent Composition: C 53.92%, H 4.81%, N 7.86%, Na 6.45%, O 17.96%, S 9.00%

Properties: Crystals from methanol + ethyl acetate. [α]D24.8 +301° (c = 2.0 in water). uv max (water): 252, 257.5, 264 nm (EM about 300, 240, 180). Freely sol in water, isotonic saline, glucose solns. Sol in methanol; less sol in ethanol. Practically insol in acetone, chloroform, ether, ethyl acetate, fixed oils, liq paraffin.

Optical Rotation: [α]D24.8 +301° (c = 2.0 in water)

Absorption maximum: uv max (water): 252, 257.5, 264 nm (EM about 300, 240, 180)

Derivative Type: Potassium salt

CAS Registry Number: 113-98-4

Trademarks: Cristapen (Glaxo Wellcome); Falapen (Frosst); Megacillin (tabl.) (Frosst); Pentids (Bristol-Myers Squibb); Pfizerpen (Roerig)

Molecular Formula: C16H17KN2O4S

Molecular Weight: 372.49.

Percent Composition: C 51.59%, H 4.60%, K 10.50%, N 7.52%, O 17.18%, S 8.61%

Properties: Crystals from aq butanol, mp 214-217° (dec). Moderately hygroscopic. [α]D22 +285° (c = 0.748 in water). Freely sol in water, isotonic saline, glucose solns; sparingly sol in ethanol. Practically insol in chloroform, ether, fixed oils, liq paraffin. pH of 6% aq soln 5.0 to 7.5.

Melting point: mp 214-217° (dec)

Optical Rotation: [α]D22 +285° (c = 0.748 in water)

Derivative Type: Mixture with clemizole

CAS Registry Number: 6011-39-8

Additional Names: Clemizole-penicillin

Trademarks: Neopenyl (Grünenthal)

Molecular Formula: C19H20ClN3.C16H18N2O4S

Molecular Weight: 660.24.

Percent Composition: C 63.67%, H 5.80%, Cl 5.37%, N 10.61%, O 9.69%, S 4.86%

Literature References: Repository form of penicillin. Prepn: H. Mückter *et al., Arzneimittel-Forsch.* **4,** 487 (1954).

Properties: White powder, mp 144-145°. [α]D24 +144.5° (c = 10 in DMF). Sol in methanol, ethanol, DMF; slightly sol in water, acetone, dioxane.

Melting point: mp 144-145°

Optical Rotation: [α]D24 +144.5° (c = 10 in DMF)

Therap-Cat: Antibacterial.

Therap-Cat-Vet: Antibacterial.

Monograph Number: 582
Title: Amoxicillin
CAS Registry Number: 26787-78-0
CAS Name: (2*S*,5*R*,6*R*)-6-[[(2*R*)-Amino(4-hydroxyphenyl)acetyl]amino]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid
Additional Names: (-)-6-[2-amino-2-(*p*-hydroxyphenyl)acetamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid; 6-[D(-)-α-amino-*p*-hydroxyphenylacetamido]penicillanic acid; α-amino-*p*-hydroxybenzylpenicillin; 6-(*p*-hydroxy-α-aminophenylacetamido)penicillanic acid; *p*-hydroxyampicillin; amoxycillin; AMPC
Trademarks: Amolin (Takeda); Amopenixin (Hishiyama); Helvamox (Helvepharm); Moxal (RPR); Pasetocin (Kyowa); Penimox (IBSA); Zamocilline (Zambon)
Molecular Formula: $C_{16}H_{19}N_3O_5S$
Molecular Weight: 365.41.
Percent Composition: C 52.59%, H 5.24%, N 11.50%, O 21.89%, S 8.78%
Literature References: Semi-synthetic antibiotic related to penicillin. Prepn: Nayler, Smith, **GB 978178** (1964 to Beecham); *eidem,* **US 3192198** (1965); Long, Nayler, **DE 1942693** and **GB 1241844** (1970 and 1971 to Beecham), *C.A.* **72,** 90447q (1970). Resolution of isomers: Long *et al., J. Chem. Soc. (C)* **1971,** 1920. Series of articles on activity, pharmacology, absorption and excretion: *Antimicrob. Ag. Chemother.* **1970,** 407-430. Review of antibacterial activity, pharmacokinetics and therapeutic use: R. N. Brogden *et al., Drugs* **18,** 169-184 (1979). Comprehensive description: A. E. Bird, *Anal. Profiles Drug Subs. Excip.* **23,** 1-52 (1994).

Derivative Type: Trihydrate
CAS Registry Number: 61336-70-7
Manufacturers' Codes: BRL-2333
Trademarks: Agram (Inava); Alfamox (Alfa); Almodan (Berk); Amocilline (Inpharzam); Amodex (Bouchara); Amoram (Eastern); Amoxidin (Lagap); Amoxil (SKB); Amoxillat (Azupharma); Amoxipen (Metapharma); Amoxypen (Grünenthal); Ardine (Pharmacia & Upjohn); Betamox (Norbrook); Bristamox (Bristol-Myers Squibb); Cabermox (Caber); Clamoxyl (SKB); Cuxacillin (TAD); Flemoxine (Yamanouchi); Grinsil (Bristol-Myers Squibb); Hiconcil (Bristol-Myers Squibb); Larotid (Roche); Moxaline (Bristol-Myers Squibb); Ospamox (Biochemie); Polymox (Apothecon); Robamox (Fort Dodge); Sawacillin (Fujisawa); Sigamopen (Dumex); Simoxil (Virginia Farm); Trimox (Apothecon); Velamox (SKB); Widecillin (Meiji); Wymox (Wyeth-Ayerst); Zimox (Pharmacia & Upjohn)
Properties: Off-white crystalline powder. $[\alpha]_{D20}$ +246° (c = 0.1). uv max (ethanol): 230, 274 nm (ε 10850, 1400); (0.1*N* HCl): 229, 272 nm (ε 9500, 1080); (0.1*N* KOH): 248, 291 (ε 2200, 3000). Solubility (mg/ml): water 4.0; methanol 7.5; abs ethanol 3.4. Insol in hexane, benzene, ethyl acetate, acetonitrile.
Optical Rotation: $[\alpha]_{D20}$ +246° (c = 0.1)
Absorption maximum: uv max (ethanol): 230, 274 nm (ε 10850, 1400); (0.1*N* HCl): 229, 272 nm (ε 9500, 1080); (0.1*N* KOH): 248, 291 (ε 2200, 3000)

Derivative Type: Sodium salt
CAS Registry Number: 34642-77-8
Trademarks: Amoxidal (Roemmers); Ibiamox (IBI)
Molecular Formula: $C_{16}H_{18}N_3NaO_5S$
Molecular Weight: 387.39.
Percent Composition: C 49.61%, H 4.68%, N 10.85%, Na 5.93%, O 20.65%, S 8.28%

Therap-Cat: Antibacterial.
Therap-Cat-Vet: Antibacterial.

Monograph Number: 927

Title: Aztreonam

CAS Registry Number: 78110-38-0

CAS Name: [2*S*-[2α,3β(*Z*)]]-2-[[[1-(2-Amino-4-thiazolyl)-2-[(2-methyl-4-oxo-1-sulfo-3-azetidinyl)amino]-2-oxoethylidene]amino]oxy]-2-methylpropanoic acid

Additional Names: azthreonam

Manufacturers' Codes: SQ-26776

Trademarks: Azactam (Bristol-Myers Squibb); Primbactam (Menarini)

Molecular Formula: $C_{13}H_{17}N_5O_8S_2$

Molecular Weight: 435.44.

Percent Composition: C 35.86%, H 3.94%, N 16.08%, O 29.39%, S 14.73%

Literature References: The first totally synthetic monocyclic β-lactam (monobactam) antibiotic. It has a high degree of resistance to β-lactamases and shows specific activity vs aerobic gram-negative rods. Prepn: R. B. Sykes *et al.,* **NL 8100571** (1981 to Squibb), *C.A.* **96,** 181062x (1982). Fast-atom-bombardment mass spectra: A. I. Cohen *et al., J. Pharm. Sci.* **71,** 1065 (1982). Activity vs gram-negative bacteria: R. B. Sykes *et al., Antimicrob. Ag. Chemother.* **21,** 85 (1982). Series of articles on structure-activity, *in vitro* and *in vivo* properties, pharmacokinetics: *J. Antimicrob. Chemother.* **8,** Suppl. E, 1-148 (1981). Toxicology: G. R. Keim *et al., ibid.* 141. Mechanism of action study: A. D. Russell, J. R. Furr, *ibid.* **9,** 329 (1982). Comparative stability to renal dipeptidase: H. Mikami *et al., Antimicrob. Ag. Chemother.* **22,** 693 (1982). Human pharmacokinetics: E. A. Swabb *et al., ibid.* **21,** 944 (1982). Clinical evaluation in urinary tract infection: C. Donadio *et al., Drugs Exp. Clin. Res.* **13,** 167 (1987). Clinical efficacy in neonatal sepsis: S. Sklavunu-Tsurutsoglu *et al., Rev. Infect. Dis.* **13,** Suppl. 7, S591 (1991). Comprehensive description: K. Florey, *Anal. Profiles Drug Subs.* **17,** 1-39 (1988).

Properties: White crystalline, odorless powder, dec 227°. Very slightly sol in ethanol, slightly sol in methanol, sol in DMF, DMSO. Practically insol in toluene, chloroform, ethyl acetate.

Derivative Type: Disodium salt

Molecular Formula: $C_{13}H_{15}N_5Na_2O_8S_2$

Molecular Weight: 479.40.

Percent Composition: C 32.57%, H 3.15%, N 14.61%, Na 9.59%, O 26.70%, S 13.38%

Properties: LD_{50} (mg/kg): 3300 i.v. in mice; 6600 i.p. in rats (Keim).

Toxicity data: LD_{50} (mg/kg): 3300 i.v. in mice; 6600 i.p. in rats (Keim)

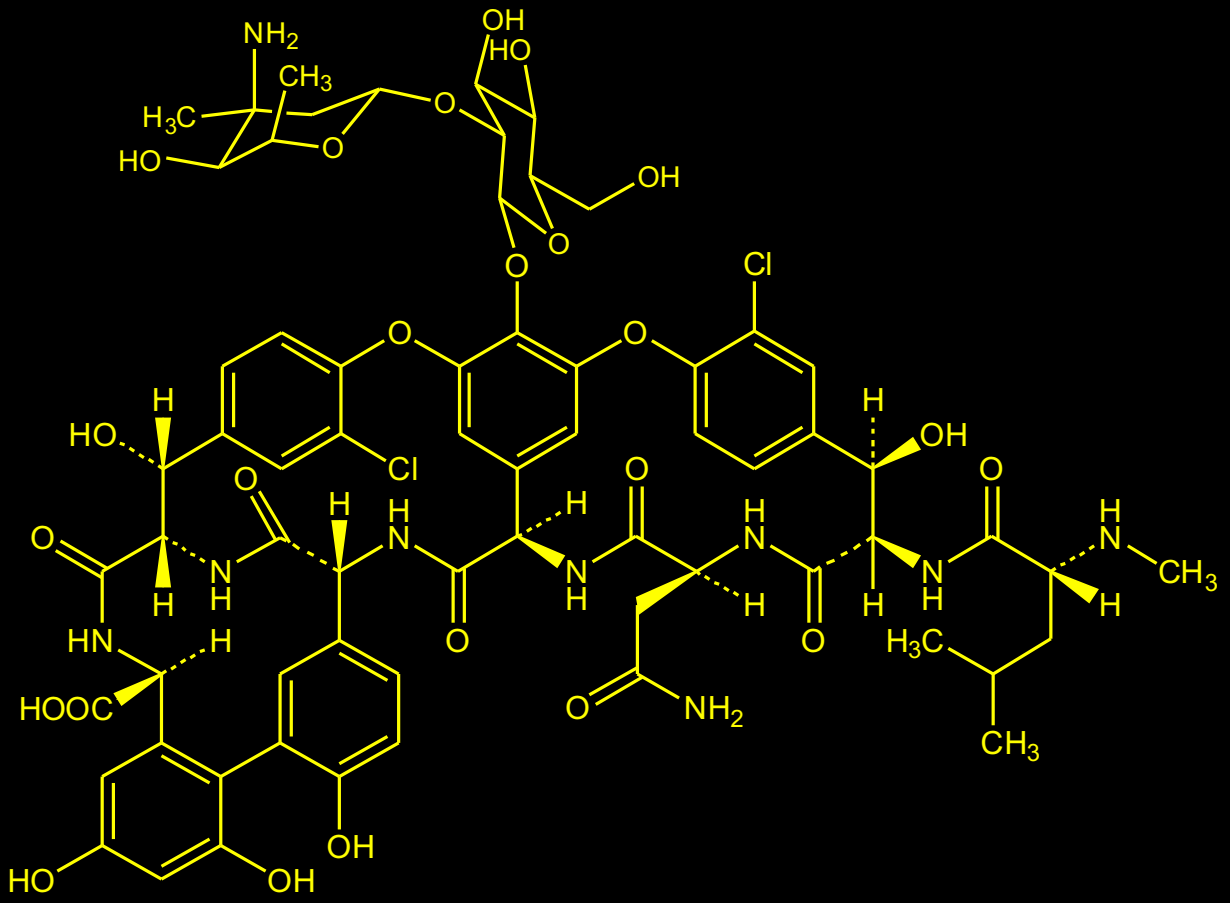
Therap-Cat: Antibacterial.

GLYCOPEPTIDNI ANTIBIOTICI

GLIKOPEPTIDI: NAJZNAČAJNIJI PREDSTAVNIK JE VANCOMYCIN. PRVI PUT IZOLOVAN 1953. IZ BAKTERIJSKE KULTURE *Amycolatopsis orientalis* KOJA ŽIVI U ZEMLJIŠTU (NA BORNEU).

EFIKASAN JE PREMA TEŠKIM INFEKCIJAMA KOJE IZAZIVAJU GRAM-POZITIVNE BAKTERIJE, MULTI-REZISTENTNE NA DRUGE ANTIBIOTIKE, POSEBNO β-LAKTAMSKE.

SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.



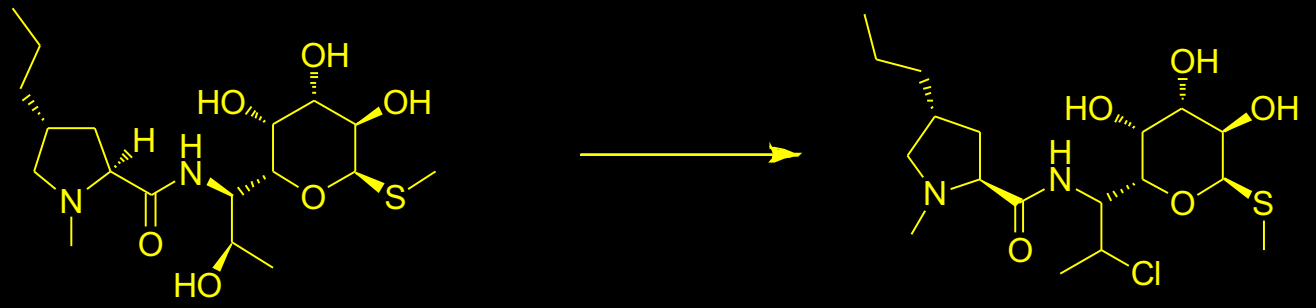
LINKOZAMIDNI ANTIBIOTICI (LINCOSAMIDES)

PREPARATI VODE POREKLO OD PRIRODNOG METABOLITA LINCOMYCIN-a, KOJI POSTAJE U KULTURI BAKTERIJA Streptomyces lincolnensis.

SAVREMENI LEKOVI IZ OVE GRUPE DOBIJAJU SE PARCIJALNOM SINTEZOM.

KLINDAMICIN (Clindamycin) ANTIBIOTIK IZ KLASE LINKOZAMIDA. PRIMENJUJE SE PRE SVEGA PROTIV INFEKCIJA ANAEROBNIM BAKTERIJAMA ALI SE MOŽE KORISTITI I PROTIV INFEKCIJE PROTOZOAMA KAO ŠTO JE MALARIJA. KORISTI SE I U LEČENJU KOŽNIH INFEKCIJA KAO I AKNI.

SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.



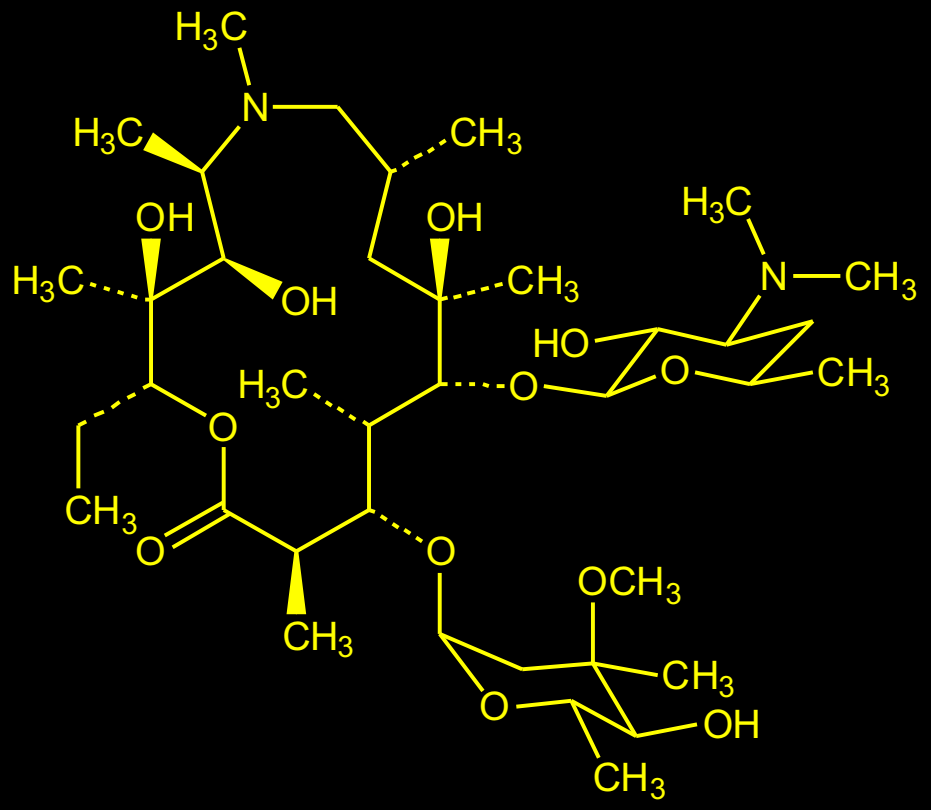
LINCOMYCIN

CLINDAMYCIN

MAKROLIDI, MAKROCIKLIČNI LAKTONI

SADRŽE MAKROCIKLIČNI LAKTONSKI PRSTEN, TIPIČNO SA 14-16 ČLANOVA, ZA KOJI SU VEZANI DEOKSI-ŠEĆERI.

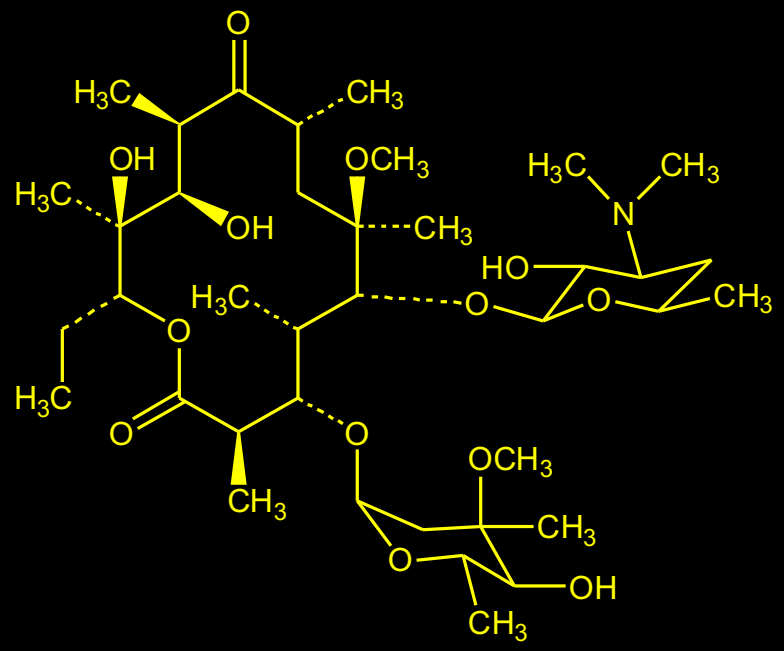
PRIMERI: AZITROMICIN



SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

MAKROLIDI, MAKROCIKLIČNI LAKTONI

PRIMERI: KLARITROMICIN (CLARITHROMYCIN (6-O-METHYL ERYTHROMYCIN)). DERIVAT ERITROMICINA. PROTIV RAZLIČITIH BAKTERIJSKIH INFEKCIJA

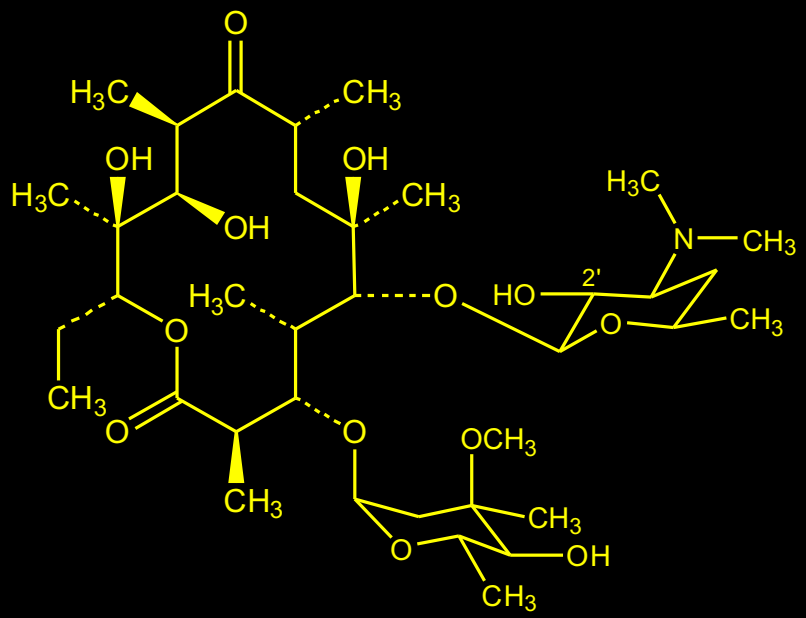


SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

MAKROLIDI, MAKROCIKLIČNI LAKTONI

POSTAJE BIOSINTEZOM U KULTURI BAKTERIJA *Saccharopolyspora erythraea* (actinomycete). SADRŽI MAKROCIKLIČNI LAKTONSKI PRSTEN (14-ČLANOVA) SA 10 HIRALNIH CENTARA. ZA OSNOVNI PRSTEN VEZANA SU DVA MOLEKULA ŠEĆERA (L-cladinose I D-desosamine).

IMA ŠIRI SPEKTAR DEJSTVA OD PENICILINA. ČESTO SE KORISTI KOD PACIJENATA KOJI SU ALERGIČNI NA PENICILIN.

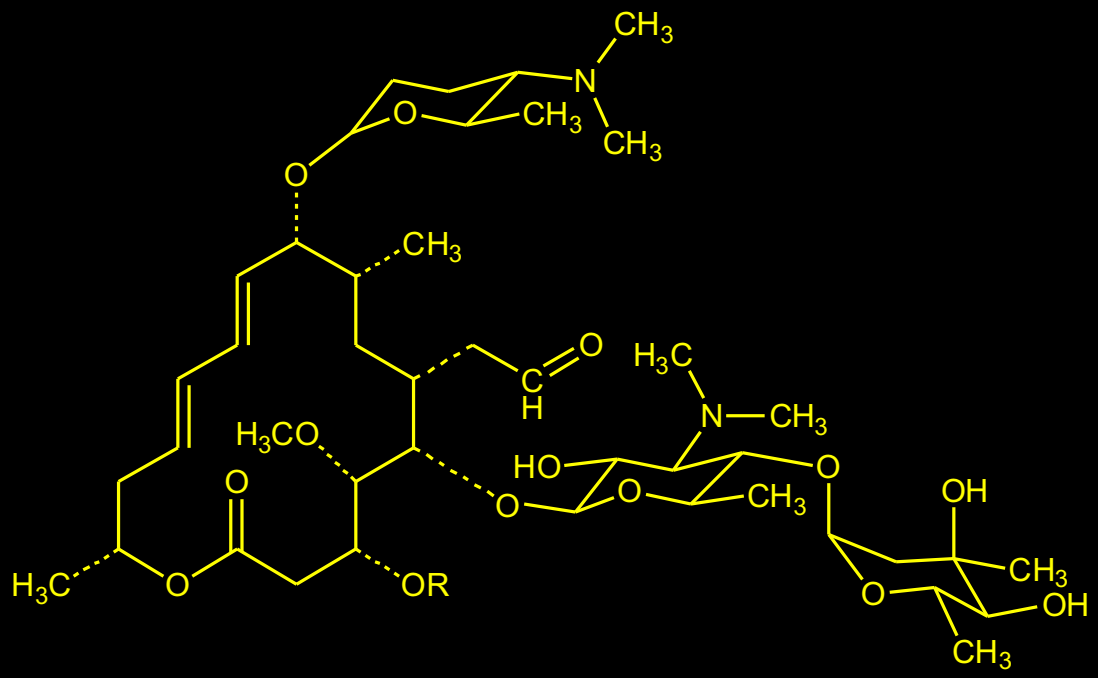


SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

MAKROLIDI, MAKROCIKLIČNI LAKTONI

SPIRAMICIN (Spiramycin). OTKRIVEN 1952, KAO PROIZVOD METABOLIZMA BAKTERIJE *Streptomyces ambofaciens.* EFIKASAN JE PROTIV RAZLIČITIH GRAM-POZITIVNIH I GRAM-NEGATIVNIH BAKTERIJA.

REGISTROVAN JE I PRIMENJUJE SE U MNOGIM ZEMLJAMA, UKLJUČIJUĆI EU. IMA SLIČNU AKTIVNOST KAO I ERITROMICIN. NEMA MNOGO SPOREDNIH EFEKATA.DAJE SE U OBLIKU INJEKCIJA I ORALNO.



Spiramycin I R = H
Spiramycin II R = $COCH_3$
Spiramycin III R = $COCH_2CH_3$

Monograph Number: 917
Title: Azithromycin
CAS Registry Number: 83905-01-5
CAS Name: [2*R*-(2*R**,3*S**,4*R**,5*R**,8*R**,10*R**,11*R**,12*S**,13*S**,14*R**)]-13-[(2,6-Dideoxy-3-*C*-methyl-3-*O*-methyl-α-L-*ribo*-hexopyranosyl)oxy]-2-ethyl-3,4,10-trihydroxy-3,5,6,8,10,12,14-heptamethyl-11-[[3,4,6-trideoxy-3-(dimethylamino)-β-D-*xylo*-hexopyranosyl]oxy]-1-oxa-6-azacyclopentadecan-15-one
Additional Names: *N*-methyl-11-aza-10-deoxo-10-dihydroerythromycin A; 9-deoxo-9*a*-methyl-9*a*-aza-9*a*-homoerythromycin A
Manufacturers' Codes: CP-62993; XZ-450
Trademarks: Azitrocin (Roerig); Ribotrex (Fabre); Sumamed (Pliva); Trozocina (Sigma-Tau); Zithromax (Pfizer); Zitromax (Pfizer)
Molecular Formula: $C_{38}H_{72}N_2O_{12}$
Molecular Weight: 748.98.
Percent Composition: C 60.94%, H 9.69%, N 3.74%, O 25.63%
Literature References: Semi-synthetic macrolide antibiotic; related to erythromycin A, *q.v.* Prepn: **BE 892357**; G. Kobrehel, S. Djokic, **US 4517359** (1982, 1985 both to Sour Pliva). Antibacterial spectrum: S. C. Aronoff *et al., J. Antimicrob. Chemother.* **19,** 275 (1987); and mode of action: J. Retsema *et al., Antimicrob. Ag. Chemother.* **31,** 1939 (1987). Series of articles on pharmacology, pharmacokinetics, and clinical experience: *J. Antimicrob. Chemother.* **31,** Suppl. E, 1-198 (1993). Clinical trial in prevention of *Pneumocystis carinii* pneumonia in AIDS patients: M. W. Dunne *et al., Lancet* **354,** 891 (1999). Review of pharmacology and clinical efficacy in pediatric infections: H. D. Langtry, J. A. Balfour, *Drugs* **56,** 273-297 (1998).
Properties: Crystals, mp 113-115°. $[\alpha]_{D20}$ -37° (c = 1 in $CHCl_3$).
Melting point: mp 113-115°
Optical Rotation: $[\alpha]_{D20}$ -37° (c = 1 in $CHCl_3$)
Therap-Cat: Antibacterial.

Monograph Number: 8826
Title: Spiramycin
CAS Registry Number: 8025-81-8
Manufacturers' Codes: RP-5337
Trademarks: Selectomycin (Grünenthal); Rovamicina (RPR); Rovamycin (RPR)
Literature References: Antibiotic substance classified in the erythromycin-carbomycin group and produced by *Streptomyces ambofaciens* from soil of northern France: Cosar *et al., Compt. Rend. Soc. Biol.* **234,** 1498 (1952); Pinnert-Sindico *et al., Antibiot. Ann.* **1954-1955,** 724; Ninet, Verrier, **US 2943023** (1960 to Rhône-Poulenc), *see also* **US 3000785** (1961 to Rhône-Poulenc). Antibacterial activity and toxicity: H. Sous *et al., Arzneimittel-Forsch.* **8,** 386 (1958). Separation into 3 components named spiramycin I, II and III: Preud'homme, Charpentier, **US 2978380** and **US 3011947** (1961 to Rhône-Poulenc). Structure: Kuehne, Benson, *J. Am. Chem. Soc.* **87,** 4660 (1965). Revised structure: Omura *et al., ibid.* **91,** 3401 (1969); Mitscher *et al., J. Antibiot.* **26,** 55 (1973). Revised configuration at C-9: Freiberg *et al., J. Org. Chem.* **39,** 2474 (1974). Symposium on pharmacology, antibacterial spectrum, and clinical efficacy: *J. Antimicrob. Chemother.* **22,** Suppl. B, 1-213 (1988).
Properties: Amorphous base, slightly sol in water. $[\alpha]_{D20}$ -80° (methanol). uv max (ethanol): 231 nm. Sol in most organic solvents. Active on gram-positive bacteria and rickettsiae. Cross resistance between microorganisms resistant to erythromycin and carbomycin. LD_{50} in rats (mg/kg): 9400 orally; 1000 s.c.; 170 i.v. (Sous).
Optical Rotation: $[\alpha]_{D20}$ -80° (methanol)
Absorption maximum: uv max (ethanol): 231 nm
Toxicity data: LD_{50} in rats (mg/kg): 9400 orally; 1000 s.c.; 170 i.v. (Sous)

Derivative Type: Embonate
Trademarks: Spira 200 (RMB)

Derivative Type: Hexanedioate
Additional Names: Spiramycin adipate
Trademarks: Stomamycin (Chassot); Suanovil (Biokema)

Derivative Type: Spiramycin I
CAS Registry Number: 24916-50-5
Additional Names: Foromacidin A
Molecular Formula: $C_{43}H_{74}N_2O_{14}$
Molecular Weight: 843.05.
Percent Composition: C 61.26%, H 8.85%, N 3.32%, O 26.57%
Properties: Crystals, mp 134-137°. $[\alpha]_{D20}$ -96°.
Melting point: mp 134-137°
Optical Rotation: $[\alpha]_{D20}$ -96°

Derivative Type: Spiramycin I triacetate
Properties: Crystals, mp 140-142°. $[\alpha]_{D20}$ -92.5°.
Melting point: mp 140-142°
Optical Rotation: $[\alpha]_{D20}$ -92.5°

Derivative Type: Spiramycin II
CAS Registry Number: 24916-51-6
Additional Names: Foromacidin B
Molecular Formula: $C_{45}H_{76}N_2O_{15}$
Molecular Weight: 885.09.
Percent Composition: C 61.07%, H 8.65%, N 3.17%, O 27.11%
Properties: Crystals, mp 130-133°. $[\alpha]_{D20}$ -86°.
Melting point: mp 130-133°
Optical Rotation: $[\alpha]_{D20}$ -86°

Derivative Type: Spiramycin II diacetate
Properties: Crystals from cyclohexane, mp 156-160°. $[\alpha]_{D20}$ -98.4°.
Melting point: mp 156-160°
Optical Rotation: $[\alpha]_{D20}$ -98.4°

Derivative Type: Spiramycin III
CAS Registry Number: 24916-52-7
Additional Names: Foromacidin C
Molecular Formula: $C_{46}H_{78}N_2O_{15}$
Molecular Weight: 899.11.
Percent Composition: C 61.45%, H 8.74%, N 3.12%, O 26.69%
Properties: Crystals, mp 128-131°. $[\alpha]_{D20}$ -83°.
Melting point: mp 128-131°
Optical Rotation: $[\alpha]_{D20}$ -83°

Derivative Type: Spiramycin III diacetate
Properties: Crystals from cyclohexane, mp 140-142°. $[\alpha]_{D20}$ -90.4°.
Melting point: mp 140-142°
Optical Rotation: $[\alpha]_{D20}$ -90.4°

Therap-Cat: Antibacterial.
Therap-Cat-Vet: Antibacterial; growth promotant.

Monograph Number: 2362

Title: Clarithromycin

CAS Registry Number: 81103-11-9

CAS Name: 6-*O*-Methylerythromycin

Manufacturers' Codes: A-56268; TE-031

Trademarks: Biaxin (Abbott); Clathromycin (Taisho); Cyllind (Abbott); Klacid (Abbott); Klaricid (Abbott); Macladin (Guidotti); Naxy (Sanofi Winthrop); Veclam (Zambon); Zeclar (Abbott)

Molecular Formula: C38H69NO13

Molecular Weight: 747.95.

Percent Composition: C 61.02%, H 9.30%, N 1.87%, O 27.81%

Literature References: Semisynthetic macrolide antibiotic; derivative of erythromycin, *q.v.* Prepn: Y. Watanabe *et al.*, **EP 41355**; *eidem,* **US 4331803** (1981, 1982 both to Taisho); and *in vitro* antibacterial activity: S. Morimoto *et al., J. Antibiot.* **37,** 187 (1984). *In vitro* and *in vivo* antibacterial activity: P. B. Fernandes *et al., Antimicrob. Ag. Chemother.* **30,** 865 (1986). Comparative antibacterial spectrum *in vitro:* C. Benson *et al., Eur. J. Clin. Microbiol.* **6,** 173 (1987); H. M. Wexler, S. M. Finegold, *ibid.* 492. HPLC determn in biological fluids: D. Croteau *et al., J. Chromatog.* **419,** 205 (1987). Acute toxicity study: S. Abe *et al., Chemotherapy (Tokyo)* **36,** Suppl. 3, 274 (1988). Symposium on pharmacology and comparative clinical studies: *J. Antimicrob. Chemother.* **27,** Suppl. A, 1-124 (1991). Comprehensive description: I. I. Salem, *Anal. Profiles Drug Subs. Excip.,* **24,** 45-85, (1996).

Properties: Colorless needles from chloroform + diisopropyl ether (1:2), mp 217-220° (dec). Also reported as crystals from ethanol, mp 222-225° (Morimoto). uv max (CHCl3): 288 nm (e 27.9). uv max (CHCl3): 240, 288 nm; (methanol): 211, 288 nm. [a]D24 -90.4° (c = 1 in CHCl3). Stable at acidic pH. LD50 in male, female mice, male, female rats (mg/kg): 2740, 2700, 3470, 2700 orally, 1030, 850, 669, 753 i.p., >5000 all s.c. (Abe).

Melting point: mp 217-220° (dec); mp 222-225° (Morimoto)

Optical Rotation: [a]D24 -90.4° (c = 1 in CHCl3)

Absorption maximum: uv max (CHCl3): 288 nm (e 27.9). uv max (CHCl3): 240, 288 nm

Toxicity data: LD50 in male, female mice, male, female rats (mg/kg): 2740, 2700, 3470, 2700 orally, 1030, 850, 669, 753 i.p., >5000 all s.c. (Abe)

Therap-Cat: Antibacterial.

Monograph Number: 3714
Title: Erythromycin
CAS Registry Number: 114-07-8
Additional Names: Erythromycin A
Trademarks: Abomacetin (Mochida); Ak-Mycin (Akorn); Aknin (Schwarzhaupt); E-Base (Barr); EMU; E-Mycin (Upjohn); Eritrocina (Abbott); Ery Derm (Abbott); Erymax (Parke-Davis); Ery-Tab (Abbott); Erythromast 36; Erythromid (Abbott); ERYC (Parke-Davis); Erycen (Berk); Erycin; Erycinum (Schering AG); Ermysin (Britannia); Ilotycin (Lilly); Inderm (Luitpold); Retcin (DDSA); Staticin (Westwood); Stiemycin (Stiefel); Torlamicina
Molecular Formula: C37H67NO13
Molecular Weight: 733.92.
Percent Composition: C 60.55%, H 9.20%, N 1.91%, O 28.34%
Literature References: Antibiotic substance produced by a strain of *Streptomyces erythreus* (Waksman) Waksman & Henrici, found in a soil sample from the Philippine Archipelago. Isoln: McGuire *et al., Antibiot. & Chemother.* **2,** 281 (1952); Bunch, McGuire, **US 2653899** (1953 to Lilly); Clark, Jr., **US 2823203** (1958 to Abbott). Properties: Flynn *et al., J. Am. Chem. Soc.* **76,** 3121 (1954). Solubility data: Weiss *et al., Antibiot. & Chemother.* **7,** 374 (1957). Structure: Wiley *et al., J. Am. Chem. Soc.* **79,** 6062 (1957). Configuration: Hofheinz, Grisebach, *Ber.* **96,** 2867 (1963); Harris *et al., Tetrahedron Letters* **1965,** 679. There are three erythromycins produced during fermentation, designated A, B, and C; A is the major and most important component. Erythromycins A and B contain the same sugar moieties, desosamine, *q.v.,* and cladinose (3-*O*-methylmycarose). They differ in position 12 of the aglycone, erythronolide, A having an hydroxyl substituent. Component C contains desosamine and the same aglycone present in A but differs by the presence of mycarose, *q.v.,* instead of cladinose. Structure of B: P. F. Wiley *et al., J. Am. Chem. Soc.* **79,** 6070 (1957); of C: *eidem, ibid.* 6074. Synthesis of the aglycone, erythronolide B: E. J. Corey *et al., ibid.* **100,** 4618, 4620 (1978); of erythronolide A: *eidem, ibid.* **101,** 7131 (1979). Asymmetric total synthesis of erythromycin A: R. B. Woodward *et al., ibid.* **103,** 3215 (1981). NMR spectrum of A: D. J. Ager, C. K. Sood, *Magn. Reson. Chem.* **25,** 948 (1987). Biosynthesis: Martin, Goldstein, *Progr. Antimicrob. Anticancer Chemother., Proc. 6th Int. Congr. Chemother.* **II,** 1112 (1970); Martin *et al., Tetrahedron,* **31,** 1985 (1975). Cloning and expression of clustered biosynthetic genes: R. Stanzak *et al., Biotechnology* **4,** 229 (1986). *Reviews:* T. J. Perun in *Drug Action and Drug Resistance in Bacteria* **1,** S. Mitsuhashi, Ed. (University Park Press, Baltimore, 1977) pp 123-152; Oleinick in *Antibiotics,* **vol. 3,** J. W. Corcoran, F. E. Hahn, Eds. (Springer-Verlag, New York, 1975) pp 396-419; *Infection* **10,** Suppl. 2, S61-S118 (1982). Comprehensive description: W. L. Koch, *Anal. Profiles Drug Subs.* **8,** 159-177 (1979).
Properties: Hydrated crystals from water, mp 135-140°, resolidifies with second mp 190-193°. Melting point taken after drying at 56° and 8 mm. [α]D25 -78° (c = 1.99 in ethanol). uv max (pH 6.3): 280 nm (ε 50). pKa1 8.8. Basic reaction. Readily forms salts with acids. Soly in water: ~2 mg/ml. Freely sol in alcohols, acetone, chloroform, acetonitrile, ethyl acetate. Moderately sol in ether, ethylene dichloride, amyl acetate.
Melting point: mp 135-140°, resolidifies with second mp 190-193°
pKa: pKa1 8.8
Optical Rotation: [α]D25 -78° (c = 1.99 in ethanol)
Absorption maximum: uv max (pH 6.3): 280 nm (ε 50)

Derivative Type: Ethylsuccinate
CAS Registry Number: 41342-53-4
Trademarks: Anamycin (Chephasaar); Arpimycin (Rosemont); Durapaediat (Durachemie); E.E.S. (Abbott); E-Mycin E (Upjohn); Eryliquid; Eryped (Abbott); Erythro ES (Sanko); Erythro-Holz (Pharma Holz); Erythroped (Abbott); Esinol (Toyama); Monomycin (Grünenthal); Paediathrocin (Abbott); Pediamycin (Ross); Refkas (Maruko); Wyamycin E (Wyeth)
Molecular Formula: C43H75NO16
Molecular Weight: 862.05.
Percent Composition: C 59.91%, H 8.77%, N 1.62%, O 29.70%
Literature References: Prepn: **GB 830846**; R. K. Clark, **US 2967129** (1960, 1961 both to Abbott).
Properties: Hydrated crystals from acetone + water, mp 109-110°. [α]D -42.5°.
Melting point: mp 109-110°
Optical Rotation: [α]D -42.5°

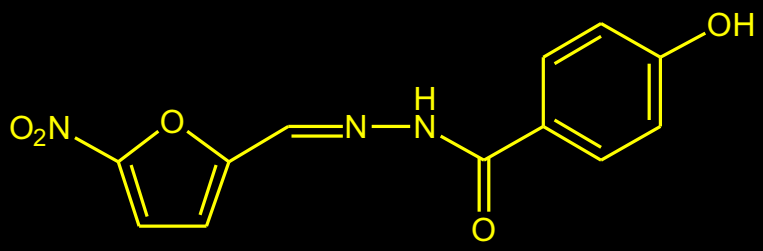
Therap-Cat: Antibacterial.
Therap-Cat-Vet: Antibacterial.

NITROFURANS

NITROFURANI – POTPUNO SINTETIČKA KLASA LEKOVA SA ANTI-BAKTERIJSKIM I ANTI-FUNGALNIM DEJSTVOM. STRUKTURNO, SVI SADRŽE FURANSKI PRSTEN SA NITRO GRUPOM.

NIFURATEL -IMA ŠIROKO ANTI-BAKTERIJSKO DEJSTVO PROTIV INFEKCIJA Chlamydia trachomatis I Mycoplasma spp KAO I ANTI-FUNGALNO DEJSTVO PROTIV PATOGENA IZ GRUPE Candida spp. NE POKAZUJE ZNAČAJNIJE SPOREDNE EFEKTE

NIFUROKSAZID (Nifuroxazide). U TRETIRANJU RAZLIČITIH INFEKCIJA DIGESTIVNOG TRAKTA.



NITROFURANS

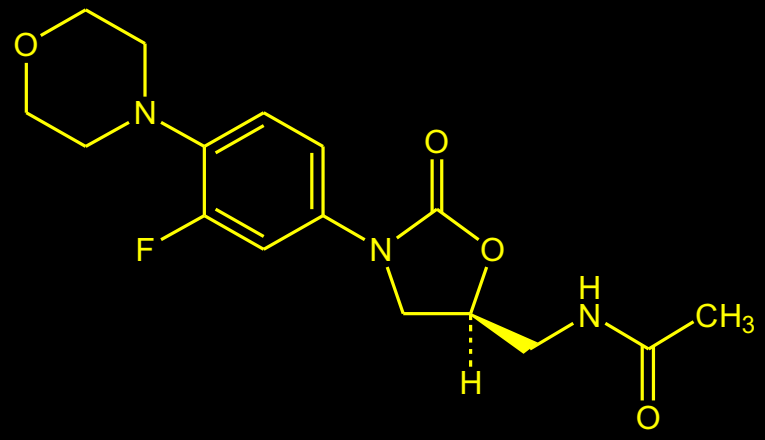
Monograph Number: 6559
Title: Nifuratel
CAS Registry Number: 4936-47-4
CAS Name: 5-[(Methylthio)methyl]-3-[[(5-nitro-2-furanyl)methylene]amino]-2-oxazolidinone
Additional Names: 5-[(methylthio)methyl]-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone; 5-(methylmercaptomethyl)-3-(5-nitro-2-furfurylideneamino)-2-oxazolidinone; methylmercadone
Trademarks: Inimur (ICN); Macmiror (Poli); Magmilor (Poli); Omnes (Fumouze); Polmiror (Poli); Tydantil (Polichimica Sap)
Molecular Formula: C10H11N3O5S
Molecular Weight: 285.28.
Percent Composition: C 42.10%, H 3.89%, N 14.73%, O 28.04%, S 11.24%
Literature References: Prepn: **BE 635608** (1963 to Polichimica SAP), *C.A.* **61,** 16069c (1964), corresp to **GB 969126**.
Properties: Crystals from acetic acid, mp 182°.
Melting point: mp 182°
Therap-Cat: Antibacterial; antifungal; antiprotozoal (Trichomonas).

Monograph Number: 6562
Title: Nifuroxazide
CAS Registry Number: 965-52-6
CAS Name: 4-Hydroxybenzoic acid [(5-nitro-2-furanyl)methylene]hydrazide
Additional Names: *p*-hydroxybenzoic acid (5-nitrofurfurylidene)hydrazide; 1-(*p*-hydroxybenzoyl)-2-(5-nitrofurfurylidene)hydrazine; 5-nitro-2-furaldehyde *p*-hydroxybenzoylhydrazone
Manufacturers' Codes: RC-27109
Trademarks: Adral (Lifepharma); Bacifurane (Meram); Diarlidan (Vinas); Dicoferin; Ercefurol; Ercefuryl (Sanofi-Synthelabo); Pentofuryl (Karlspharma)
Molecular Formula: $C_{12}H_9N_3O_5$
Molecular Weight: 275.22.
Percent Composition: C 52.37%, H 3.30%, N 15.27%, O 29.07%
Literature References: Prepn: **FR 1327840** (1963 to Robert et Carriere), *C.A.* **59,** 12763b (1963); M. C. E. Carron, **GB 962706**; *idem,* **US 3290213** (1964, 1966 both to Robert et Carriere). Antiseptic and antibacterial properties: M. C. E. Carron *et al., Ann. Pharm. Franc.* **21,** 287 (1963). *In vitro* study of activity spectrum: A. Thabaut, J. L. Durosoir, *Gaz. Med. Fr.* **85,** 4516 (1978), *C.A.* **90,** 1487 (1979).
Properties: Crystals from pyridine, mp 298°. Practically insol in water.
Melting point: mp 298°
Therap-Cat: Intestinal antiseptic.

LEKOVI IZ KATEGORIJE OKSAZOLIDINONA (**OXAZOLIDINONE**)

Linezolid –POTPUNO SINTETIČKI ANTIBIOTIK NOVIJE GENERACIJE (POSLE 2000). AKTIVAN JE PROTIV ŠIROKOG SPEKTRA GRAM-POZITIVNIH BAKTERIJSKIH INFEKCIJA (streptococci, enterococci, Staphylococcus aureus), REZISTENTNIH NA DRUGE ANTIBIOTIKE. OSNOVNE INDIKACJE SU KOD INFEKCIJA KOŽE I MEKIH TKIVA KAO I UPALE PLUĆA.

PRE SVEGA ZA KRATKOROČNU PRIMENU. KOD DUŽE PRIMENE POKAZUJE OZBILJNE SPOREDNE EFEKTE.



Monograph Number: 5526

Title: Linezolid

CAS Registry Number: 165800-03-3

CAS Name: *N*-[[(5*S*)-3-[3-Fluoro-4-(4-morpholinyl)phenyl]-2-oxo-5-oxazolidinyl]methyl]acetamide

Manufacturers' Codes: PNU-100766; U-100766

Trademarks: Zyvox (Pharmacia & Upjohn)

Molecular Formula: $C_{16}H_{20}FN_3O_4$

Molecular Weight: 337.35.

Percent Composition: C 56.96%, H 5.98%, F 5.63%, N 12.46%, O 18.97%

Literature References: Prototype of the oxazolidinone antimicrobials; inhibits bacterial mRNA translation. Prepn: M. R. Barbachyn *et al.,* **WO 95 7271** (1995 to Upjohn); *eidem,* **US 5688792** (1997 to Pharmacia & Upjohn); S. J. Brickner *et al., J. Med. Chem.* **39,** 673 (1996). Antibacterial spectrum: C. W. Ford *et al., Antimicrob. Ag. Chemother.* **40,** 1508 (1996). Mechanism of action study: D. L. Shinabarger *et al., ibid.* **41,** 2132 (1997). Review of pharmacology: L. D. Dresser, M. J. Rybak, *Pharmacotherapy* **18,** 456-462 (1998).

Properties: White crystals from ethyl acetate and hexanes, mp 181.5-182.5°. $[\alpha]_{D20}$ -9° (c = 0.919 in chloroform).

Melting point: mp 181.5-182.5°

Optical Rotation: $[\alpha]_{D20}$ -9° (c = 0.919 in chloroform)

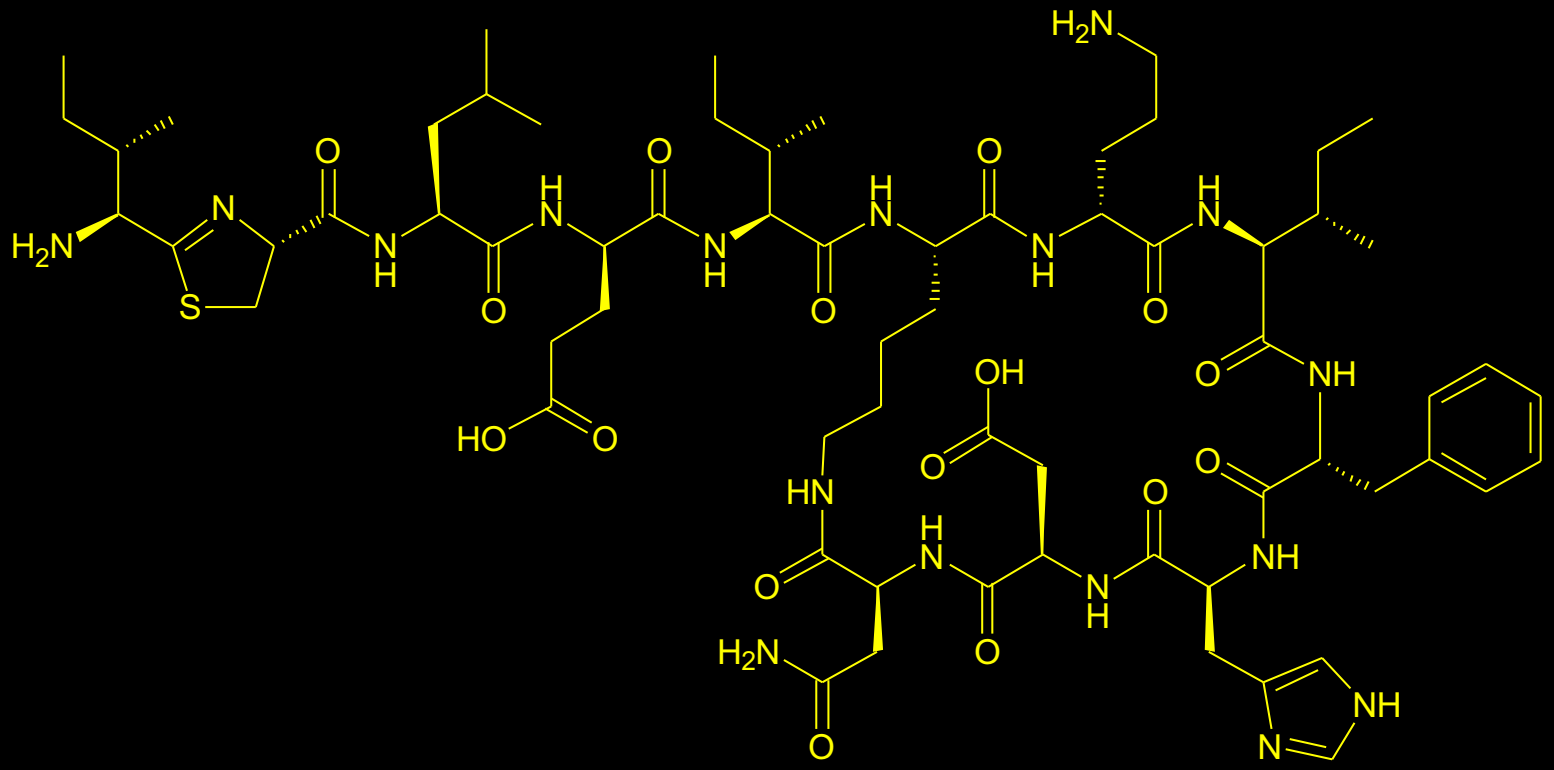
Therap-Cat: Antibacterial.

POLIPEPTIDI

BACITRACIN – SMESA SRODIH CIKLIČNIH POLIPEPTIDA KOJA POSTAJE BIOSINTEZOM U GRUPI BAKTERIJA *Bacillus subtilis var Tracy*. PRVI PUT IZOLOVANI 1945.

DELUJU NA ŠIROKI SPEKTAR GRAM-POZITIVNIH I GRAM-NEGARIVNIH BAKTERIJA.

KORISTI SE SAMO ZA SPOLJAŠNJU UPOTREBU.



POLIPEPTIDI - BACITRACIN

Monograph Number: 936

Title: Bacitracin

CAS Registry Number: 1405-87-4

Trademarks: Ak-Tracin (Akorn); Baciim (Pharma-Tek); Fortracin (CPC); Ocu-Tracin (Ocumed)

Literature References: Antibiotic polypeptide complex produced by *Bacillus subtilis* and *B. licheniformis*; mixture of at least nine bacitracins of which ***bacitracin A*** is the major component. Isoln: Johnson *et al., Science* **102,** 376 (1945); Anker *et al., J. Bacteriol.* **55,** 249 (1948). Purification of bacitracin by carrier displacement method: Porath, *Acta Chem. Scand.* **6,** 1237 (1952). Purification with ion exchange resin: Chaiet, Cochrane, **US 2915432** (1959 to Merck & Co.). Production: Johnson, Meleney, **US 2498165** (1950 to the U.S. Secy. of War); Freaney, Allen, **US 2828246** (1958 to Commercial Solvents). Solubilities: Weiss *et al., Antibiot. Chemother.* **7,** 374 (1957). Preliminary structure studies: Hausmann *et al., J. Am. Chem. Soc.* **77,** 723 (1955); Lockhart *et al., Biochem. J.* **61,** 534 (1955); Stoffel, Craig, *J. Am. Chem. Soc.* **83,** 145 (1961). Structure of bacitracin A: Ressler, Kashelikar, *ibid.* **88,** 2025 (1966); Galardy *et al., Biochemistry* **10,** 2429 (1971). Synthetic studies: Munekata *et al., Bull. Chem. Soc. Japan* **46,** 3187, 3835 (1973). Mechanism of action: Storm, *Ann. N.Y. Acad. Sci.* **235,** 387 (1974). Comprehensive description: G. A. Brewen, *Anal. Profiles Drug Subs.* **9,** 1-69 (1980). *Reviews:* Craig *et al.,* "Bacitracin" in G. E. W. Wolstenholme, C. M. O'Connor, *Ciba Foundation Symposium on Amino Acids and Peptides with Antimetabolic Activity* (Little, Brown, Boston, 1958) pp 226-246; E. D. Weinberg in *Antibiotics,* D. Gottlieb, P. D. Shaw, Eds. (Springer-Verlag, New York, 1967) **I,** pp 90-99; **II,** pp 240-245; D. R. Storm, W. A. Toscano, Jr. in *Antibiotics* **vol. 5,** pt. 1, F. E. Hahn, Ed. (Springer-Verlag, New York, 1979) pp 1-17.

Properties: Grayish-white powder. Very bitter taste. Sol in water, alcohol. Practically insol in ether, chloroform, acetone. Stable in acid soln; unstable in alkaline solns. Potency loss probably due to transformation of bacitracin A to bacitracin F, latter having little antimicrobial activity.

Therap-Cat: Antibacterial.

Therap-Cat-Vet: Antibacterial.

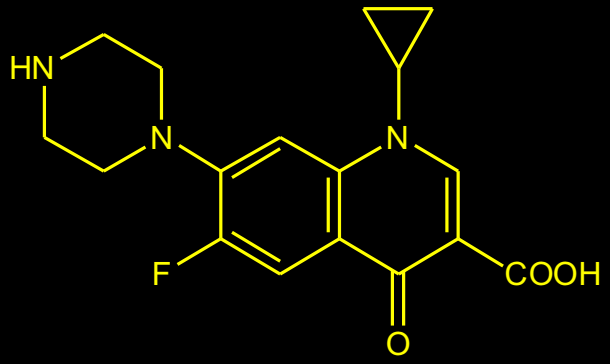
HINOLONI (QUINOLONES)

HINOLONI (QUINOLONES) – GRUPA POTPUNO SINTETIČKIH ANTI-BAKTERIJSKIH LEKOVA ŠIROKOG SPEKTRA.

PRVI PUT SINTETIZOVANI KRAJEM PEDESETIH GODINA, DO DANAS JE NA TRŽIŠTU 4 GENERACIJE OVIH LEKOVA.

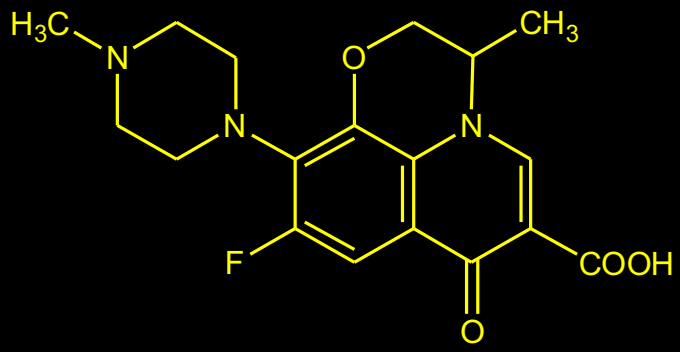
I GENERACIJA

II GENERACIJA



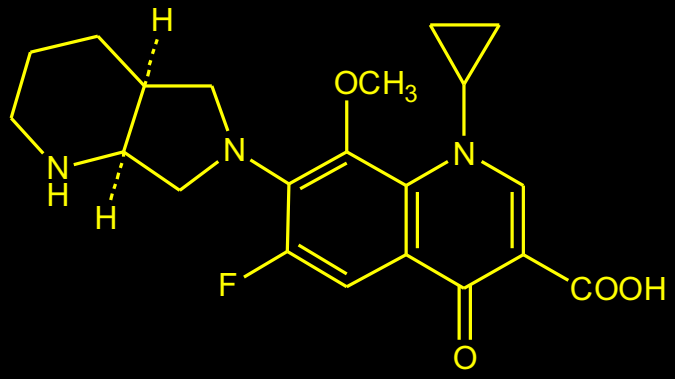
CIPROFLOXACIN

III GENERACIJA



OFLOXACIN

IV GENERACIJA



MOXIFLOXACIN

HINOLONI (QUINOLONES)

Monograph Number: 2337

Title: Ciprofloxacin

CAS Registry Number: 85721-33-1

CAS Name: 1-Cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-7-(1-piperazinyl)-3-quinolinecarboxylic acid

Manufacturers' Codes: Bay q 3939

Molecular Formula: $C_{17}H_{18}FN_3O_3$

Molecular Weight: 331.34.

Percent Composition: C 61.62%, H 5.48%, F 5.73%, N 12.68%, O 14.49%

Literature References: Fluorinated quinolone antibacterial. Prepn: K. Grohe *et al.,* **DE 3142854**; *eidem,* **US 4670444** (1983, 1987 both to Bayer AG); K. Grohe, H. Heitzer, *Ann.* **1987,** 29. Antibacterial spectrum *in vitro*: B. Watt, F. V. Brown, *J. Antimicrob. Chemother.* **17,** 605 (1986); C. M. Bassey *et al., ibid.* 623. HPLC determn in biological fluids: W. Gau *et al., J. Liq. Chromatog.* **8,** 485 (1985). Pharmacokinetics: G. Hoffken *et al., Antimicrob. Ag. Chemother.* **27,** 375 (1985). Clinical trials: C. A. Ramirez *et al., ibid.* **28,** 128 (1985); B. E. Scully *et al., Lancet* **1,** 819 (1986). Symposia on antibacterial spectrum and clinical use: *Am. J. Med.* **82,** Suppl. 4A, 1-404 (1987); *J. Antimicrob. Chemother.* **26,** Suppl. F, 3-193 (1990). Review of clinical safety and efficacy in children: R. Kubin, *Infection* **21,** 413-421 (1993).

Properties: Dec 255-257°.

Derivative Type: Monohydrochloride monohydrate

CAS Registry Number: 86393-32-0

Manufacturers' Codes: Bay o 9867

Trademarks: Baycip (Bayer); Ciflox (Bayer); Ciloxan (Alcon); Cipro (Bayer); Ciprobay (Bayer); Ciproxan (Bayer); Ciproxin (Bayer); Flociprin (IBI); Septicide (Bago); Uniflox (Bayer); Velmonit (Esteve)

Molecular Formula: $C_{17}H_{18}FN_3O_3.HCl.H_2O$

Molecular Weight: 385.82.

Percent Composition: C 52.92%, H 5.49%, F 4.92%, N 10.89%, O 16.59%, Cl 9.19%

Properties: Light yellow crystalline powder. mp 318-320°.

Melting point: mp 318-320°

Therap-Cat: Antibacterial.

Monograph Number: 6800

Title: Ofloxacin

CAS Registry Number: 82419-36-1

CAS Name: 9-Fluoro-2,3-dihydro-3-methyl-10-(4-methyl-1-piperazinyl)-7-oxo-7*H*-pyrido[1,2,3-*de*]-1,4-benzoxazine-6-carboxylic acid

Additional Names: ofloxacine

Manufacturers' Codes: DL-8280; HOE-280

Trademarks: Exocin (Allergan); Flobacin (Sigmatau); Floxil (Cilag); Floxin (J & J); Oflocet (HMR); Oflocin (Glaxo); Oxaldin (Daiichi); Tarivid (HMR); Visiren (Jugoremedija)

Molecular Formula: $C_{18}H_{20}FN_3O_4$

Molecular Weight: 361.37.

Percent Composition: C 59.83%, H 5.58%, F 5.26%, N 11.63%, O 17.71%

Literature References: Broad spectrum, fluorinated quinolone antibacterial. Prepn: I. Hayakawa *et al.,* **EP 47005**; *eidem,* **US 4382892** (1982, 1983 both to Daiichi). Total synthesis: H. Egawa *et al., Chem. Pharm. Bull.* **34,** 4098 (1986). Synthesis and activity of optical isomers: S. Atarashi *et al., ibid.* **35,** 1896 (1987). Antibacterial spectrum of racemate: K. Sato *et al., Antimicrob. Ag. Chemother.* **22,** 548 (1982). Pharmacology and clinical efficacy: *Infection* **14,** Suppl. 1, S1-S109 (1986). Review of antibacterial spectrum, pharmacology, and clinical efficacy: J. P. Monk, D. M. Campoli-Richards, *Drugs* **33,** 346-391 (1987). Symposium on pharmacokinetics and therapeutic use: *Scand. J. Inf. Dis.* **Suppl. 68,** 1-69 (1990). Toxicity data: H. Ohno *et al., Chemotherapy (Tokyo)* **32,** Suppl. 1, 1084 (1984); M. Kato *et al., Arzneimittel-Forsch.* **42,** 365 (1992). Series of articles on pharmacology and toxicology of (-)-form: *ibid.*, 368-418.

Properties: Colorless needles from ethanol, mp 250-257° (dec). LD_{50} in male, female mice, male, female rats (mg/kg): 5450, 5290, 3590, 3750 orally; 208, 233, 273, 276 i.v.; >10000, >10000, 7070, 9000 s.c. (Ohno).

Melting point: mp 250-257° (dec)

Toxicity data: LD_{50} in male, female mice, male, female rats (mg/kg): 5450, 5290, 3590, 3750 orally; 208, 233, 273, 276 i.v.; >10000, >10000, 7070, 9000 s.c. (Ohno)

Derivative Type: *S*-(-)-Form

CAS Registry Number: 100986-85-4

Additional Names: Levofloxacin

Manufacturers' Codes: DR-3355

Trademarks: Cravit (Daiichi); Tavanic (HMR); Quixin (Santen)

Properties: Prepd as the hemihydrate; needles from ethanol + ethyl ether, mp 225-227° (dec). $[\alpha]_{D23}$ -76.9° (c = 0.385 in 0.5*N* NaOH). LD_{50} in male, female mice, male, female rats (mg/kg): 1881, 1803, 1478, 1507 orally (Kato).

Melting point: mp 225-227° (dec)

Optical Rotation: $[\alpha]_{D23}$ -76.9° (c = 0.385 in 0.5*N* NaOH)

Toxicity data: LD_{50} in male, female mice, male, female rats (mg/kg): 1881, 1803, 1478, 1507 orally (Kato)

Therap-Cat: Antibacterial.

Monograph Number: 6316

Title: Moxifloxacin

CAS Registry Number: 151096-09-2

CAS Name: 1-Cyclopropyl-6-fluoro-1,4-dihydro-8-methoxy-7-[(4a*S*,7a*S*)-octahydro-6*H*-pyrrolo[3,4-*b*]pyridin-6-yl]-4-oxo-3-quinolinecarboxylic acid

Molecular Formula: $C_{21}H_{24}FN_3O_4$

Molecular Weight: 401.43.

Percent Composition: C 62.83%, H 6.03%, F 4.73%, N 10.47%, O 15.94%

Literature References: Fluorinated quinolone antibacterial. Prepn: U. Petersen *et al.,* **EP 550903** (1993 to Bayer). Antibacterial spectrum *in vitro:* J. M. Woodcock *et al., Antimicrob. Ag. Chemother.* **41,** 101 (1997). Activity vs *Mycobacterium tuberculosis*: B. Ji *et al., ibid.* **42,** 2066 (1998). HPLC determn in serum: C. M. Tobin *et al., J. Antimicrob. Chemother.* **42,** 278 (1998). Clinical pharmacokinetics: H. Stass *et al., Antimicrob. Ag. Chemother.* **42,** 2060 (1998).

Properties: mp 203-208° (dec). $[\alpha]_{23D}$ -193°.

Melting point: mp 203-208°

Optical Rotation: $[\alpha]_{23D}$ -193°

Derivative Type: Hydrochloride

CAS Registry Number: 186826-86-8

Manufacturers' Codes: Bay-12-8039

Trademarks: Actira (Bayer); Avalox (Bayer); Avelox (Bayer); Octegra (Vita); Proflox (Esteve)

Molecular Formula: $C_{21}H_{24}FN_3O_4.HCl$

Molecular Weight: 437.90.

Percent Composition: C 57.60%, H 5.75%, F 4.34%, N 9.60%, O 14.61%, Cl 8.10%

Properties: mp 324-325° (dec). $[\alpha]_{25D}$ -256° (c = 0.5 in water).

Melting point: mp 324-325°

Optical Rotation: $[\alpha]_{25D}$ -256° (c = 0.5 in water)

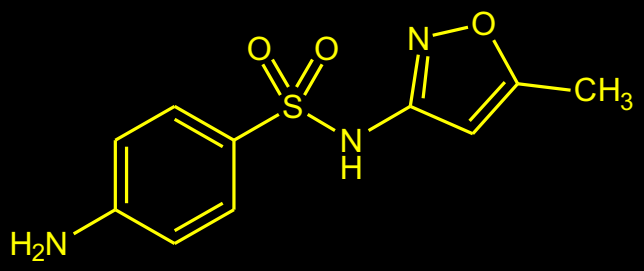
Therap-Cat: Antibacterial.

SULFONAMIDI (SULFONAMIDE)

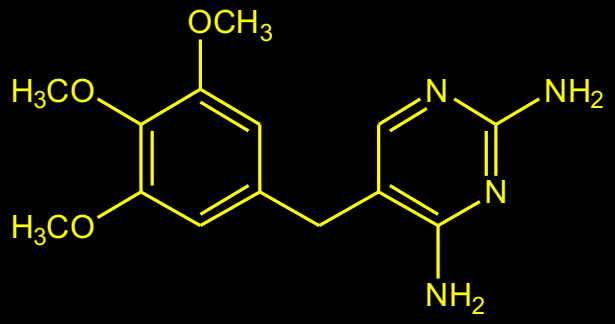
SULFONAMIDI –POTPUNO SINTETIČKI ANTIBAKTERIJSKI PREPARATI KOJI SU PRVI UŠLI U UPOTREBU (TRIDESETIH GODINA).

SINTETIZOVAN JE VELIKI BROJ OVIH JEDINJENJA, MEĐUTIM ZBOG RELATIVNO OGRANIČENE EFIKASNOSTI U ODNOSU NA DRUGE ANTI-BAKTERIJSKE PREPARATE U NOVIJE VREME SE MANJE KORISTE.

MEĐUTIM, KOMBINACIJA DVA PREPARATA (Trimethoprim/sulfamethoxazole) IMA ZNAČAJNU PRIMENU U TRETIRANJU RAZLIČITIH BAKTERIJSKIH, FUNGALNIH KAO I INFEKCIJAMA PROTOZOAMA. DELUJE NA INHIBICIJU BIOSINTEZE I METABOLIZMA FOLNE KISELINE.



sulfamethoxazole



Trimethoprim

Monograph Number: 9782

Title: Trimethoprim

CAS Registry Number: 738-70-5

CAS Name: 5-[(3,4,5-Trimethoxyphenyl)methyl]-2,4-pyrimidinediamine

Additional Names: 2,4-diamino-5-(3,4,5-trimethoxybenzyl)pyrimidine

Trademarks: Instalac (Virbac); Monotrim (Duphar); Proloprim (Wellcome); Syraprim (Wellcome); Tiempe (DDSA); Trimanyl (Tosse); Trimogal (Lagap); Trimopan (Berk); Trimpex (Roche); Uretrim (Bastian); Wellcoprim (Wellcome)

Molecular Formula: C14H18N4O3

Molecular Weight: 290.32.

Percent Composition: C 57.92%, H 6.25%, N 19.30%, O 16.53%

Literature References: Prepn from guanidine and β-ethoxy-3,4,5-trimethoxybenzylbenzalnitrile: Stenbuck, Hood, **US 3049544** (1962 to Burroughs Wellcome); Hoffer, **US 3341541** (1967 to Hoffmann-La Roche). Improved synthesis: B. Roth *et al., J. Med. Chem.* **23,** 379, 535 (1980). Toxicity data: Yamamoto *et al., Chemotherapy (Tokyo*) **21,** 187 (1973). *Review:* Burchall in *Antibiotics* **vol. 3,** J. W. Corcoran, F. E. Hahn, Eds. (Springer-Verlag, New York, 1975) pp 304-320. Comprehensive description: G. J. Manius, *Anal. Profiles Drug Subs.* **7,** 445-475 (1978). Review of antibacterial activity, pharmacokinetics and therapeutic use: R. N. Brogden *et al., Drugs* **23,** 405-430 (1982).

Properties: White to cream, bitter crystalline powder, mp 199-203°. Soly in g/100 ml at 25°: DMAC 13.86; benzyl alcohol 7.29; propylene glycol 2.57; chloroform 1.82; methanol 1.21; water 0.04; ether 0.003; benzene 0.002. pKa 6.6. LD50 orally in mice: 7000 mg/kg (Yamamoto).

Melting point: mp 199-203°

pKa: pKa 6.6

Toxicity data: LD50 orally in mice: 7000 mg/kg (Yamamoto)

NOTE: *See* Sulfamethoxazole, Sulfadiazine, Sulfametrole, Sulfamoxole, and Sulfalene for lists of trade names of mixtures with Trimethoprim.

Therap-Cat: Antibacterial.

Therap-Cat-Vet: Antibacterial.

Monograph Number: 9003

Title: Sulfamethoxazole

CAS Registry Number: 723-46-6

CAS Name: 4-Amino-*N*-(5-methyl-3-isoxazolyl)benzenesulfonamide

Additional Names: *N*1-(5-methyl-3-isoxazolyl)sulfanilamide; 5-methyl-3-sulfanilamidoisoxazole; 3-sulfanilamido-5-methylisoxazole; 3-(*p*-aminophenylsulfonamido)-5-methylisoxazole; sulfisomezole; sulfamethylisoxazole; sulfamethoxizole

Trademarks: Gantanol (Roche); Sinomin (Shionogi)

Molecular Formula: C10H11N3O3S

Molecular Weight: 253.28.

Percent Composition: C 47.42%, H 4.38%, N 16.59%, O 18.95%, S 12.66%

Literature References: Prepn starting with ethyl 5-methylisoxazole-3-carbamate: Kano *et al.,* **US 2888455** (1959 to Shionogi); *Ann. Rep. Shionogi Res. Lab.* **7,** 1 (1957), *C.A.* **51,** 17889 (1957). Toxicity data: Yamamoto *et al., Chemotherapy (Tokyo)* **21,** 187 (1973), *C.A.* **79,** 73738n (1973). Clinical trial of mixture with trimethoprim in *Pneumocystis carinii* pneumonia: J. M. Wharton *et al., Ann. Int. Med.* **105,** 37 (1986). Comprehensive description: B. C. Rudy, B. Z. Senkowski, *Anal. Profiles Drug Subs.* **2,** 467-486 (1973). Review of antibacterial activity and clinical efficacy of mixture with trimethoprim: G. P. Wormser *et al., Drugs* **24,** 459-518 (1982). Symposium on clinical intravenous therapy: *Rev. Infect. Dis.* **9,** Suppl. 2, S152-S229 (1987).

Properties: Bitter crystals from dil ethanol, mp 167°. LD50 orally in mice: 3662 mg/kg (Yamamoto).

Melting point: mp 167°

Toxicity data: LD50 orally in mice: 3662 mg/kg (Yamamoto)

Derivative Type: Mixture with trimethoprim

CAS Registry Number: 8064-90-2

Additional Names: Co-trimoxazole

Trademarks: Abacin (Benedetti); Apo-Sulfatrim (Apotex); Bactramin (Roche); Bactrim (Roche); Baktar (Shionogi); Chemotrim (Rosemont); Drylin (Merckle); Eusaprim (Wellcome); Fectrim (DDSA); Gantaprim (Lenza); Gantrim (Geymonat); Imexim (Cimex); Kepinol (Pfleger); Laratrim (Lagap); Linaris (R.A.N.); Microtrim (Chephasaar); Nopil (Mepha); Oraprim (A.T.I.); Septra (Burroughs Wellcome); Septrin (Burroughs Wellcome); Sigaprim (Dumex); Sulfotrim (Nattermann); Sulprim (Polfa); Sumetrolim (EGYT); Supracombin (Grünenthal); Suprim (Valeas); Teleprim (Procter & Gamble); Thiocuran (Sagitta); Trigonyl (Hoyer); Trimesulf (LPB); Uroplus (Shionogi); Uro-Septra (Wellcome)

Properties: LD50 orally in mice: 5513 mg/kg (Yamamoto).

Toxicity data: LD50 orally in mice: 5513 mg/kg (Yamamoto)

Derivative Type: *N4*-Acetylsulfamethoxazole

CAS Registry Number: 21312-10-7

Properties: Crystals from alcohol, mp 209-210°.

Melting point: mp 209-210°

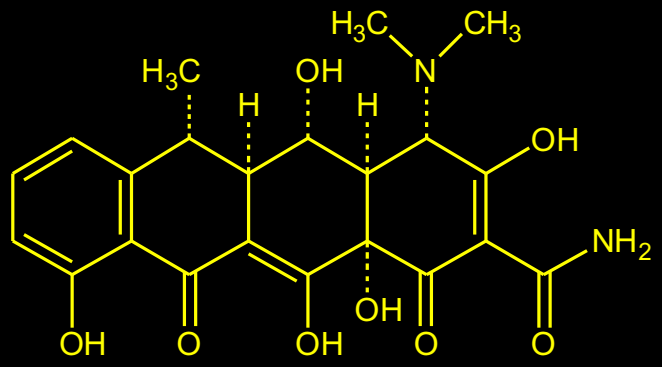
Therap-Cat: Antibacterial; antipneumocystic.

Therap-Cat-Vet: Antibacterial.

TETRACIKLINSKI ANTIBIOTICI (TETRACYCLINE)

KATEGORIJA POTPUNO SINTETIČKIH ANTIBIOTIKA ŠIROKOG SPEKTRA. U NOVIJE VREME SE MANJE PRIMENJUJU ZOG POJAVE REZISTENTNIH SOJEVA. I DALJE IMAJU PRIMENU KOD POJEDINIH SPECIFIČNIH INDIKACIJA

DOXYCYCLINE



SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

Monograph Number: 3474

Title: Doxycycline

CAS Registry Number: 17086-28-1 (monohydrate); 564-25-0 (anhydrous)

CAS Name: [4*S*-(4α,4aα,5α,5aα,6α,12aα)]-4-(Dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,5,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide monohydrate

Additional Names: α-6-deoxy-5-hydroxytetracycline monohydrate; α-6-deoxyoxytetracycline monohydrate; 5-hydroxy-α-6-deoxytetracycline monohydrate

Manufacturers' Codes: GS-3065

Trademarks: Jenacyclin (Jenapharm); Supracyclin (Grünenthal); Vibramycin (Pfizer)

Molecular Formula: $C_{22}H_{24}N_2O_8.H_2O$

Molecular Weight: 462.45.

Percent Composition: C 57.14%, H 5.67%, N 6.06%, O 31.14%

Literature References: Prepn of family of 6-deoxytetracyclines: C. R. Stephens *et al., J. Am. Chem. Soc.* **80,** 5324 (1958). *See also:* McCormick, Jensen, **US 3019260** (1962 to Am. Cyanamid). Prepn, separation and configuration of 6α- and 6β-epimers: M. S. von Wittenau *et al., J. Am. Chem. Soc.* **84,** 2645 (1962); C. R. Stephens *et al., ibid.* **85,** 2643 (1963). Prepn of 6α-deoxyoxytetracycline: R. K. Blackwood *et al.,* **US 3200149** (1965 to Pfizer). ^{1}H-NMR study: M. S. von Wittenau, R. K. Blackwood, *J. Org. Chem.* **31,** 613 (1966). Biological properties: English, *Proc. Soc. Exp. Biol. Med.* **122,** 1107 (1966). Pharmacology: Fabre, *Chemotherapia* **11,** 73 (1966); Gibaldi, *ibid.* **12,** 265 (1967). Toxicity of hyclate: Goldenthal, *Toxicol. Appl. Pharmacol.* **18,** 185 (1971). Clinical trial in prophylaxis of leptospirosis: E. T. Takafuji *et al., N. Engl. J. Med.* **310,** 497 (1984). Clinical trial in periodontitis: A. M. Polson *et al., J. Periodontol.* **68,** 110, 119 (1997). *Review:* C. Edwards in *Pharmacological and Biochemical Properties of Drug Substances* **vol. 2,** M. E. Goldberg, Ed. (Am. Pharm. Assoc., Washington, DC, 1979) pp 305-332.

Derivative Type: Hydrochloride hemiethanolate hemihydrate

CAS Registry Number: 24390-14-5

Additional Names: Doxycycline hyclate

Trademarks: Atridox (Atrix); Azudoxat (Azupharma); Bassado (Poli); Clinofug (Wolff); Diocimex (Cimex); Doryx (Parke-Davis); Doxatet (Cox); Doxicrisol (Quimifar); Doxychel hyclate (Rachelle); Doxylar (Lagap); Doxytem (Temmler); Duradoxal (Durachemie); Granudoxy (Pierre Fabre); Hydramycin (Sankyo); Mespafin (Merckle); Paldomycin (Taiyo); Retens (Wassermann); Ronaxan (Rhône-Merieux); Sigadoxin (Dumex); Spanor (Biotherapie); Tetradox (Ranbaxy); Unacil (Firma); Vibramycin Hyclate (Pfizer); Vibra-Tabs (Pfizer); Vibraveineuse (Pfizer); Vibravenös (Pfizer); Zadorin (Mepha)

Molecular Formula: $C_{22}H_{25}ClN_2O_8.\frac{1}{2}C_2H_6O.\frac{1}{2}H_2O$

Molecular Weight: 512.94.

Percent Composition: C 53.86%, H 5.70%, Cl 6.91%, N 5.46%, O 28.07%

Properties: Light yellow, crystalline powder from ethanol + HCl. Chars without melting at about 201°. $[\alpha]_{D25}$ -110° (c = 1 in 0.01*N* methanolic HCl). uv max (0.01*N* methanolic HCl): 267, 351 nm (log ε 4.24, 4.12). Sol in water. The alcohol and water of crystallization are lost by drying at 100° under reduced pressure. More active biologically than the corresponding 6β-epimer hydrochloride (Wittenau, 1962). LD_{50} i.p. in rats: 262 mg/kg (Goldenthal).

Optical Rotation: $[\alpha]_{D25}$ -110° (c = 1 in 0.01*N* methanolic HCl)

Absorption maximum: uv max (0.01*N* methanolic HCl): 267, 351 nm (log ε 4.24, 4.12)

Toxicity data: LD_{50} i.p. in rats: 262 mg/kg (Goldenthal)

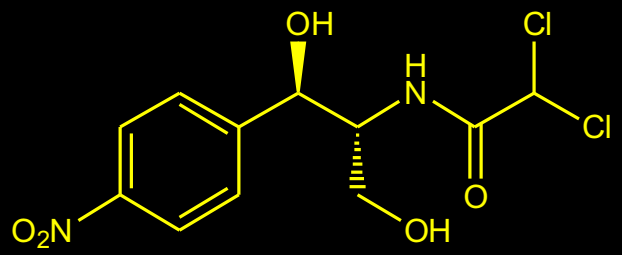
Therap-Cat: Antibacterial.

Therap-Cat-Vet: Antibacterial.

HLORAMFENIKOL (CHLORAMPHENICOL)

METABOLIT BAKTERIJE Streptomyces venezuelae, IZOLOVAN 1948.

IMA ŠIROK SPEKTAR DELOVANJA NA GRAM-POZITIVNE I GRAM-NEGATIVNE BAKTERIJE UKLJUČUJUĆI I ANAEROBNE MIKROORGANIZME. IZBOG SPREDNIH EFEKATA IZBEGAVA SE SISTEMSKA PRIMENA ALI SE ŠIROKO KORISTI POVRŠINSKI (INFEKCIJE KOŽE, OKA)



SVETSKA ZDRAVSTVENA ORGANIZACIJA GA NAVODI NA LISTI NAJZNAČAJNIJIH LEKOVA ZA OSNOVNU ZDRAVSTVENU ZAŠTITU.

Monograph Number: 2087
Title: Chloramphenicol
CAS Registry Number: 56-75-7
CAS Name: 2,2-Dichloro-*N*-[(1*R*,2*R*)-2-hydroxy-1-(hydroxymethyl)-2-(4-nitrophenyl)ethyl]acetamide
Additional Names: D-*threo*-*N*-dichloroacetyl-1-*p*-nitrophenyl-2-amino-1,3-propanediol; D(-)-*threo*-2-dichloroacetamido-1-*p*-nitrophenyl-1,3-propanediol; D-*threo*-*N*-(1,1′-dihydroxy-1-*p*-nitrophenylisopropyl)dichloroacetamide
Trademarks: Ak-Chlor (Akorn); Amphicol (McKesson); Anacetin (Philips Roxane); Aquamycetin (Winzer); Chemicetina (Erba); Chloramex (Dumex); Chlorasol (Evsco); Chloricol (Evsco); Chlorocid (EGYT); Chloromycetin (Parke-Davis); Chloroptic (Allergan); Cloramfen (Sclavo); Clorocyn (Laif); Enicol (Intra); Farmicetina (Rontag); Fenicol (Alcon); Intramycetin (Parke-Davis); Kemicetine (Farmitalia); Leukomycin (Bayer); Micoclorina (Zambon); Mychel (Rachelle); Mycinol (Horner); Novomycetin (Neves); Ophthochlor (Parke-Davis); Pantovernil (Bristol-Myers Squibb); Paraxin (Boehringer, Mann.); Quemicetina (Rontag); Ronphenil (Zeria); Sintomicetina (Lepetit); Sno Phenicol (Chauvin); Synthomycetin (Lepetit); Tevcocin (Tevcon); Tifomycine (Roussel Diamant); Veticol (Copanos); Viceton (Osborn)
Molecular Formula: C11H12Cl2N2O5
Molecular Weight: 323.13.
Percent Composition: C 40.89%, H 3.74%, Cl 21.94%, N 8.67%, O 24.76%
Literature References: Broad spectrum antibiotic obtained from cultures of the soil bacterium *Streptomyces venezuelae:* Bartz, *J. Biol. Chem.* **172,** 445 (1948); Gottlieb *et al., J. Bact.* **55,** 409 (1948); Ehrlich *et al., ibid.* **56,** 467 (1948). Isoln from the moon snail, *Lunatia heros:* C. A. Price *et al., J. Antibiot.* **34,** 118 (1981). Structure: Rebstock *et al., J. Am. Chem. Soc.* **71,** 2458 (1949). Synthesis: Controulis *et al., ibid.* 2463; Long, Troutman, *ibid.* 2469, 2473. *See also* **US 2483871**; **US 2483884**; **US 2483892**. Alternate synthesis: Ehrhart *et al., Ber.* **90,** 2088 (1957); **GB 795131**; **GB 796901** *C.A.* **53,** 2161 (1959) (both to Chinoin); **US 2839577** (1958 to Chinoin). Review and evaluation of toxicity studies: *IARC Monographs* **10,** 85-98 (1976). Review of pharmacology and clinical efficacy: I. Shalit, M. I. Marks, *Drugs* **28,** 281-291 (1984). Comprehensive description: D. Szulczewski, F. Eng, *Anal. Profiles Drug Subs.* **4,** 47-90 (1975); A. A. Al-Badr, H. A. El-Obeid, *ibid.* **15,** 701-760 (1986). *Reviews:* Hahn in *Antibiotics,* **vol. 1,** D. Gottlieb, P. D. Shaw, Eds. (Springer-Verlag, New York, 1967) pp 308-330; Pestka, *ibid.* **vol. 3,** J. W. Corcoran, F. E. Hahn, Eds. (1975) pp 370-395; O. Pongs, *ibid.* **vol. 5,** pt. 1, F. E. Hahn, Ed. (1979) pp 26-42.
Properties: Needles or elongated plates from water or ethylene dichloride. mp 150.5-151.5°. Sublimes in high vacuum. [α]D27 +18.6° (c = 4.86 in ethanol). [α]D25 -25.5° (ethyl acetate). uv max: 278 nm (E1%1cm 298). Soly (25°) in water: 2.5 mg/ml; in propylene glycol: 150.8 mg/ml. Very sol in methanol, ethanol, butanol, ethyl acetate, acetone. Fairly sol in ether. Insol in benzene, petr ether, vegetable oils. Soly in 50% acetamide soln about 5%. Additional soly data: Weiss *et al., Antibiot. Chemother.* **7,** 374 (1957). Aq solns are neutral. Neutral and acid solns are stable on heating.
Melting point: mp 150.5-151.5°
Optical Rotation: [α]D27 +18.6° (c = 4.86 in ethanol); [α]D25 -25.5° (ethyl acetate)
Absorption maximum: uv max: 278 nm (E1%1cm 298)

Derivative Type: Monosuccinate sodium salt
CAS Registry Number: 982-57-0
Trademarks: Globenicol (Yamanouchi); Protophenicol (Proto)
Molecular Formula: C15H15Cl2N2NaO8
Molecular Weight: 445.19.
Percent Composition: C 40.47%, H 3.40%, Cl 15.93%, N 6.29%, Na 5.16%, O 28.75%
Properties: Freely sol in water (about 50% w/w).

Derivative Type: Palmitate
CAS Registry Number: 530-43-8
Trademarks: Chlorambon (Biokema); Chloropal (Graeub); Clorolifarina (St. Gall)
Literature References: Prepn: Edgerton, **US 2662906** (1953 to Parke, Davis). Structure: Edgerton *et al., J. Am. Chem. Soc.* **77,** 27 (1955). Description: Glazko *et al., Antibiot. Chemother.* **2,** 234 (1952). Soly data: Weiss *et al., ibid.* **7,** 374 (1957).
Properties: Crystals from benzene, mp 90°. Practically tasteless. [α]D26 +24.6° (c = 5 in ethanol). uv max (ethanol): 271 nm (E1%1cm 179). Very slightly sol in water (1.05 mg/ml at 28°); petr ether (0.225 mg/ml). Freely sol in methanol, ethanol, chloroform, ether, benzene.
Melting point: mp 90°
Optical Rotation: [α]D26 +24.6° (c = 5 in ethanol)
Absorption maximum: uv max (ethanol): 271 nm (E1%1cm 179)

Derivative Type: Monosuccinate arginine salt
CAS Registry Number: 34327-18-9
Additional Names: Chloramphenicol arginine succinate
Trademarks: Paraxin Succinate A (Yamanouchi)
Molecular Formula: C21H30Cl2N6O10
Molecular Weight: 597.41.
Percent Composition: C 42.22%, H 5.06%, Cl 11.87%, N 14.07%, O 26.78%
Properties: mp 135-145° (dec.). *See Japan. Med. Gaz.* **7**(10), 15 (1970).
Melting point: mp 135-145° (dec.)

Derivative Type: Pantothenate calcium complex (4:1)
CAS Registry Number: 31342-36-6
Additional Names: Chloramphenicol pantothenate
Trademarks: Pantofenicol (Promesa)
Molecular Formula: C62H80CaCl8N10O30
Molecular Weight: 1769.06.
Percent Composition: C 42.09%, H 4.56%, Ca 2.27%, Cl 16.03%, N 7.92%, O 27.13%
Literature References: Prepn: I. Villax, **GB 866787**; **GB 866788**; **GB 866789** (all 1961); I. Villax, **US 3078300** (1963).

Therap-Cat: Antibacterial; antirickettsial.
Therap-Cat-Vet: Antibacterial.

FUSIDINSKA KISELINA (Fusidic acid)

METABOLITIT MIKROORGANIZMA Fusidium coccineum, IZOLOVAN 1962.

UOBIČAJENO SE KORISTI POVRŠINSKI ALI SE MOŽE PRIMENJIVATI I SISTEMSKI (ORALNO, INJEKCIJE).

POKAZUJE ZNAČAJNU BAKTERIOSTATSKU AKTIVNOST. ZBOG POJAVE REZISTENCIJE KOD DRUGIH ANTIBIOTIKA, U NOVIJE VREME SE NEŠTO VIŠE PRIMENJUJE