

Interactions

As for Tetracycline, p.348.

Antimicrobial Action

As for Tetracycline, p.348.

Oxytetracycline is somewhat less active against many organisms.

Pharmacokinetics

For the general pharmacokinetics of the tetracyclines, see Tetracycline, p.349.

An oral dose of 500 mg every 6 hours is reported to produce steady-state plasma concentrations of 3 to 4 micrograms/mL. Plasma protein binding is reported to be about 20 to 40% and the half-life to be about 9 hours.

Uses and Administration

Oxytetracycline is a tetracycline derivative with actions and uses similar to those of tetracycline (p.349).

Oxytetracycline dihydrate or hydrochloride are usually used in tablets, capsules, and injections, and the calcium salt in aqueous oral suspensions; all three are also used in topical preparations. Doses have been expressed as anhydrous oxytetracycline, the dihydrate, or the hydrochloride but in practice this appears to make little difference. Oxytetracycline dihydrate and oxytetracycline hydrochloride 269.8 mg, and oxytetracycline calcium 260.3 mg, are each equivalent to about 250 mg of oxytetracycline.

Oxytetracycline is usually given orally in adult doses of 250 to 500 mg four times daily, usually 1 hour before or 2 hours after food. Higher doses, up to 4 g daily, have occasionally been given to adults with severe infection, but increase the risk of adverse effects.

Doses of oxytetracycline 250 to 500 mg daily have been used in acne, although the *BNF* advocates a dose of 1 g daily.

Oxytetracycline is sometimes given intramuscularly, in doses of 250 mg once daily or 300 mg daily in 2 or 3 divided doses, but this route may be painful and produces lower blood concentrations than recommended oral doses. As intramuscular injections are painful, lidocaine is usually included in the solution. Oxytetracycline has also been given intravenously.

For details of doses in children and adolescents, see below.

Oxytetracycline and its salts have been applied topically, often with other agents, as a variety of eye and ear drops, ointments, creams, and sprays.

Administration in children. In children, the effects on teeth should be considered and tetracyclines only used when absolutely essential. In the UK, oxytetracycline is licensed for use in children aged 12 years and over; the usual adult dose (see above) may be given orally. However, in the USA, it may be given to those over 8 years old in usual oral doses of 25 to 50 mg/kg daily in 4 divided doses or by intramuscular injection in usual doses of 15 to 25 mg/kg (to a maximum of 250 mg) daily in 2 or 3 divided doses.

Skin disorders. For reference to the use of oxytetracycline in the treatment of various skin disorders, see under Tetracycline, p.350.

Preparations

BP 2008: Oxytetracycline Capsules; Oxytetracycline Tablets; **USP 31:** Oxytetracycline and Nystatin Capsules; Oxytetracycline and Nystatin for Oral Suspension; Oxytetracycline Calcium Oral Suspension; Oxytetracycline for Injection; Oxytetracycline Hydrochloride and Hydrocortisone Acetate Ophthalmic Suspension; Oxytetracycline Hydrochloride and Hydrocortisone Ointment; Oxytetracycline Hydrochloride and Polymyxin B Sulfate Ointment; Oxytetracycline Hydrochloride and Polymyxin B Sulfate Ophthalmic Ointment; Oxytetracycline Hydrochloride and Polymyxin B Sulfate Topical Powder; Oxytetracycline Hydrochloride and Polymyxin B

Sulfate Vaginal Tablets; Oxytetracycline Hydrochloride Capsules; Oxytetracycline Injection; Oxytetracycline Tablets.

Proprietary Preparations (details are given in Part 3)

Arg.: Terramicina; **Braz.:** Terramicina; **Denm.:** Oxytetral; **Fr.:** Posicycline; **Gr.:** Terramycin; **Hong Kong:** Oxylim; **Hung.:** Tetran; **India:** Terramycin; **Indon.:** Chemotrex; Corsamycin; Terramycin; **Irl.:** Clinimycin; **Malaysia:** Oxylim; **Mex.:** Metrecina; Oxitralin; Terrados; Terramicina; **Norw.:** Oxytetral; **Philipp.:** Noxebron; **Pol.:** Oxytetracina; **Port.:** Geomicina; **Ter.:** nical; **S.Afr.:** Acu-Oxytet; Be-Oxytet; Cotet; O-4 Cycline; Oxymycin; Oxypan; Roxy; Spectratet; Tetracem; Tetramet; **Singapore:** Oxylim; Terramycin; **Spain:** Terramicina; **Swed.:** Oxytetral; **Thai.:** Oxycine; Oxylim; **Turk.:** Neocol; **UK:** Oxymycin; Oxytetraxim; **USA:** Terramycin; **Venez.:** Oxifesa; Terramicina.

Multi-ingredient: **Arg.:** Terra-Cortril; Terra-Cortril Nistatina; Terramicina con Polimixina B; **Austria:** Tetra-Gelomyrtol; **Belg.:** Eoline; Terra-Cortril; Terra-Cortril + Polymyxine B; Terramycin + Polymyxine B; **Braz.:** Terra-Cortril; Terramicina d/Polimixina; **Denm.:** Hydrocortison med Terramycin; Hydrocortison med Terramycin og Polymyxin-B; Terramycin Polymyxin B; **Fin.:** Terra-Cortril; Tetra-Cortil; **Fr.:** Auricularum; Primyxine; Ster-Dex; **Ger.:** Corti Bicion N; Farco-Tri; Oxy Bicion; Terracortril; Terramycin; Tetra-Gelomyrtol; **Gr.:** Oxacycle-P; Terra-Cortril; Terramycin; **Hong Kong:** Terramycin with Polymyxin B; **Hung.:** Oxykort; Tetran-Hydrocortison; **India:** Terramycin SF; **Indon.:** Sancortmycin; Terra-Cortril; Terramycin Poly; **Israel:** Auricularum; Terramycin; **Ital.:** Cosmidina; **Malaysia:** Terramycin; **Mex.:** Andocicla Balsamica; Terramicina; **Neth.:** Terra-Cortril Gel Steraject met polymyxine-B; Terra-Cortril met polymyxine-B; **Norw.:** Terra-Cortril; Terra-Cortril Polymyxin B; Terramycin Polymyxin B; **Philipp.:** Terramycin; **Pol.:** Atecortin; Oxykort; **Port.:** Cortil T; **Rus.:** Gluksoy (Глюксон); Oxykort (Оксикорт); **S.Afr.:** Terra-Cortril; Terramycin; **Singapore:** Terramycin; **Spain:** Coliociolina Espectro; Terra-Cortril; Terramicina; **Swed.:** Terracortril; Terracortril med polymyxin B; Terramycin Polymyxin B; **Switz.:** Terracortril; **Thai.:** Terramycin; Terrasil; **Turk.:** Geotil; Heksa; Polimisin; Sekamisin; Terramycin; **UK:** Terra-Cortril; Trimovate; **USA:** Tera; Terra-Cortril; Terramycin with Polymyxin B; Urobiotic-250; **Venez.:** Ofterra; Terra-Cortril; Terramicina con Polimixina B.

Panipenem (rINN)

Panipénem; Panipenemum. (+)-(5R,6S)-3-[(S)-1-Acetimidoyl-3-pyrrolidinyl]thio]-6-[(R)-1-hydroxyethyl]-7-oxo-1-azabicyclo[3.2.0]hept-2-ene-2-carboxylic acid.

Панипенем

$C_{15}H_{21}N_3O_4S = 339.4$.

CAS — 87726-17-8.

Pharmacopoeias. In *Jpn*.

Profile

Panipenem is a carbapenem beta-lactam antibacterial similar to imipenem (p.286). It has been given with betamipron (p.215), which reduces its adverse renal effects.

References.

- Goa KL, Noble S. Panipenem/betamipron. *Drugs* 2003; **63**: 913–25.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: *Jpn*: Carbenin.

Pazufloxacin Mesilate (rINN)

Mesilate de pazufloxacin; Pazufloxacin, Mésilate de; Pazufloxacin Mesilas; T-3762; T-3761 (pazufloxacin). (–)-(3S)-10-(1-Aminocyclopropyl)-9-fluoro-2,3-dihydro-3-methyl-7-oxo-7H-pyridol[1,2,3-de]-1,4-benzoxazine-6-carboxylic acid methanesulfonate.

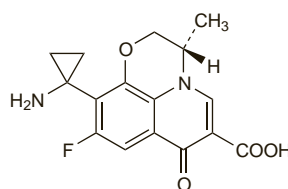
Пазуфлоксацин Мезилат

$C_{16}H_{15}FN_2O_4 \cdot CH_3SO_3H = 414.4$.

CAS — 127045-41-4 (pazufloxacin); 163680-77-1 (pazufloxacin mesilate).

ATC — J01MA18.

ATC Vet — QJ01MA18.



(pazufloxacin)

Profile

Pazufloxacin is a fluoroquinolone antibacterial with properties similar to those of ciprofloxacin (p.243). It is given by intravenous infusion as the mesilate in the treatment of susceptible infections in a usual dose equivalent to 1 g of pazufloxacin daily in 2 divided doses.

Preparations

Proprietary Preparations (details are given in Part 3)

Jpn: Pasil; Pazucross.

Pefloxacin Mesilate (BANM, rINN)

EU-5306 (pefloxacin); Mesilato de pefloxacin; Pefloksacino mesilatas dihidratas; Pefloksacyny mezylan dwuwodny; Pefloksasiinimesilaattidihdraatti; Pefloxacin Mesilate Dihydrate; Pefloxacin mesylát dihydrát; Pefloxacin Mesylate (USAN); Péfloxacine, Mésilate de; Péfloxacine (mésilate de) dihydraté; Pefloxacin Mesilas; Pefloxacin mesilas dihydricus; Pefloxacinmesilatdihydrat; Pefloxacin-mezilát-dihidráti; 1589-RB (pefloxacin); 41982-RP 1-Ethyl-6-fluoro-1,4-dihydro-7-(4-methyl-1-piperazinyl)-4-oxo-3-quinolinecarboxylic acid methanesulphonate dihydrate.

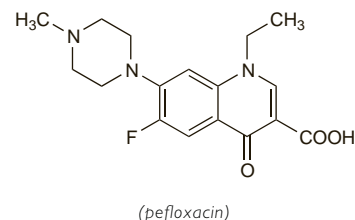
Пефлоксацин Мезилат

$C_{17}H_{20}FN_3O_3 \cdot CH_3O_3S \cdot 2H_2O = 465.5$.

CAS — 70458-92-3 (pefloxacin); 70458-95-6 (pefloxacin mesilate).

ATC — J01MA03.

ATC Vet — QJ01MA03.



Pharmacopoeias. In *Chin.* and *Eur.* (see p.vii).

Ph. Eur. 6.2 (Pefloxacin Mesilate Dihydrate). A fine, white or almost white powder. Freely soluble in water; slightly soluble in alcohol; very slightly soluble in dichloromethane. A 1% solution in water has a pH of 3.5 to 4.5. Store in airtight containers. Protect from light.

Profile

Pefloxacin is a fluoroquinolone antibacterial with actions and uses similar to those of ciprofloxacin (p.243). It also has bactericidal activity against *Mycobacterium leprae* and has been tried in the treatment of leprosy (p.176).

Pefloxacin has a longer plasma half-life than ciprofloxacin (about 8 to 13 hours) and is also extensively metabolised, the principal metabolite being *N*-desmethylpefloxacin (norfloxacin, p.309).

Pefloxacin is given orally or by intravenous infusion as the mesilate in the treatment of susceptible infections. Doses are expressed in terms of the base; pefloxacin mesilate 558.5 mg is equivalent to about 400 mg of pefloxacin. The usual dose is 400 mg twice daily. A single oral dose of 800 mg may be used in the treatment of gonococcal urethritis in men and acute uncomplicated cystitis in women.

Fluoroquinolones have caused adverse effects on the musculoskeletal system (see under Adverse Effects of Ciprofloxacin, p.244) and in the case of pefloxacin this has led to restrictions in some countries.

Adverse effects. References to adverse effects with pefloxacin.

- Chevalier X, *et al.* A case of destructive polyarthropathy in a 17-year-old youth following pefloxacin treatment. *Drug Safety* 1992; **7**: 310–14.
- Al-Hedaithy MA, Noreddin AM. Hypersensitivity anaphylactoid reaction to pefloxacin in a patient with AIDS. *Ann Pharmacother* 1996; **30**: 612–14.
- Chang H, *et al.* Pefloxacin-induced arthropathy in an adolescent with brain abscess. *Scand J Infect Dis* 1996; **28**: 641–3.

Pharmacokinetics. References to the pharmacokinetics of pefloxacin.

- Bressolle F, *et al.* Pefloxacin clinical pharmacokinetics. *Clin Pharmacokinet* 1994; **27**: 418–46.

Preparations

Proprietary Preparations (details are given in Part 3)

Braz.: Floxinon; Pefacin; Pefloxidin; **Cz.:** Abaktal; **Fr.:** Peflacine; **Gr.:** Id-rostamin; Labocton; Londomant; Peflacine; **Hung.:** Abaktal; Peflacine; **India:** Ilipet; Pefbid; Pelox; Prolox; Quin; **Indon.:** Dexamflox; Noflexin; Peflacine; **Ital.:** Peflacine; Peflox; **Malaysia:** Peflacine; Perti; **Mex.:** Nopriken; Peflacine; **Philipp.:** Floxin; **Pol.:** Abaktal; Peflacine; **Port.:** Peflacine; **Rus.:** Abaktal (Абактал); Pelox (Пелокс); Perti (Перти); Unikpef (Юникпепф); **Spain:** Azubent; Peflacine; **Thai.:** Abaktal; Peflacine; **Turk.:** Peflacine; **Venez.:** Peflacine; Perti.

The symbol † denotes a preparation no longer actively marketed

Penethamate Hydriodide (BAN)

Diethylaminoethyl Penicillin G Hydroiodide; Penetamato, hid-
roioduro de; Pénéthamate, iodhydrate de; Penethamati hydroio-
didum. 2-Diethylaminoethyl (6R)-6-(2-phenylacetamido)penicil-
lanate hydriodide.

$C_{22}H_{31}N_3O_4S \cdot HI = 561.5$.

CAS — 3689-73-4 (penethamate); 808-71-9 (penetha-
mate hydriodide).

ATC Vet — QJ01CE90; QJ51CE90.

Profile

Penethamate is a penicillin antibacterial used as the hydriodide in
veterinary medicine.

Pheneticillin Potassium (BANM, rINNM)

Feneticilina potásica; Kalii Pheneticillinum; Penicillin B; Phenethicil-
lin Potassium; Phénéticilline Potassique; Pheneticillinum Kalicum;
Potassium α -Phenoxyethylpenicillin. A mixture of the D(+) and L(-)
isomers of potassium (6R)-6-(2-phenoxypropionami-
do)penicillanate.

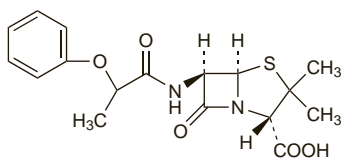
Калия Фенетициллин

$C_{17}H_{19}KN_2O_5S = 402.5$.

CAS — 147-55-7 (pheneticillin); 132-93-4 (pheneticillin
potassium).

ATC — J01CE05.

ATC Vet — QJ01CE05.



(pheneticillin)

Pharmacopoeias. In *Jpn*.**Profile**

Pheneticillin is a phenoxyphenicillin with actions and uses similar
to those of phenoxymethylpenicillin (below). It has been given
orally, as the potassium salt, for the treatment of susceptible mild
to moderate infections. Pheneticillin sodium has also been used.

Preparations

Proprietary Preparations (details are given in Part 3)

Neth.: Broxil.

Phenoxymethylpenicillin (BAN, rINN)

Fenoksimetilpenicilinas; Fenoksimetylpenicillini; Fenoksimetylo-
penicilina; Fenoximetilpenicilina; Fenoximetilpenicillin; Fenoxi-
metylpenicillin; Fenoxymethylpenicilin; Penicillin, Phenoxymethyl;
Penicillin V (USAN); Penicillin V; Phénomycline; Phenoxymethyl
Penicillin; Phénoxyméthylpénicilline; Phenoxymethylpenicillinum.
(6R)-6-(2-Phenoxyacetamido)penicillanic acid.

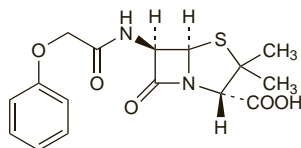
Феноксиметилпенициллин

$C_{16}H_{18}N_2O_5S = 350.4$.

CAS — 87-08-1.

ATC — J01CE02.

ATC Vet — QJ01CE02.

**Pharmacopoeias.** In *Eur*. (see p.vii), *Int.*, *US*, and *Viet*.

Ph. Eur. 6.2 (Phenoxymethylpenicillin). A substance produced
by the growth of certain strains of *Penicillium notatum* or related
organisms on a culture medium containing an appropriate pre-
cursor, or obtained by any other means. A white or almost white,
slightly hygroscopic, crystalline powder. Very slightly soluble in
water; soluble in alcohol. A 0.5% suspension in water has a pH
of 2.4 to 4.0. Store in airtight containers.

USP 31 (Penicillin V). A white, odourless crystalline powder.
Very slightly soluble in water; freely soluble in alcohol and in ace-
tone; insoluble in fixed oils. pH of a 3% suspension in water is
between 2.5 and 4.0. Store in airtight containers.

Phenoxymethylpenicillin Calcium (BANM, rINNM)

Calcii Phenoxymethylpenicillinum; Fenoximetilpenicilina cálcica;
Penicillin V Calcium; Phénoxyméthylpénicilline Calcique; Phe-
noxymethylpenicillinum Calcium.

Кальций Феноксиметилпенициллин

$(C_{16}H_{17}N_2O_5S)_2 \cdot Ca \cdot 2H_2O = 774.9$.

CAS — 147-48-8 (anhydrous phenoxymethylpenicillin cal-
cium); 73368-74-8 (phenoxymethylpenicillin calcium dihy-
drate).

ATC — J01CE02.

ATC Vet — QJ01CE02.

Pharmacopoeias. In *Int*.**Phenoxymethylpenicillin Potassium** (BANM, rINNM)

Fenoksimetil Penicilin Potasyum; Fenoksimetilpenicilino kalio
druska; Fenoksimetylpenicilliniokaliu; Fenoksimetylopenicilina
potasowa; Fenoximetilpenicilina potásica; Fenoximetilpenicilina
Potássica; Fenoximetilpenicillin-kálium; Fenoximetylpenicillin ka-
lium; Fenoxymethylpenicilin draselná sůť; Kalii Phenoxymethyl-
penicillinum; Penicillin V Potassium (USAN); Phénoxyméthylpénicil-
line potassique; Phenoxymethylpenicillinum kalicum.

Калия Феноксиметилпенициллин

$C_{16}H_{17}KN_2O_5S = 388.5$.

CAS — 132-98-9.

ATC — J01CE02.

ATC Vet — QJ01CE02.

Pharmacopoeias. In *Chin.*, *Eur*. (see p.vii), *Int.*, *US*, and *Viet*.

Ph. Eur. 6.2 (Phenoxymethylpenicillin Potassium). A white or al-
most white, crystalline powder. Freely soluble in water; practi-
cally insoluble in alcohol. A 0.5% solution in water has a pH of
5.5 to 7.5.

USP 31 (Penicillin V Potassium). A white, odourless crystalline
powder. Very soluble in water; soluble 1 in 150 of alcohol; insol-
uble in acetone. pH of a 3% solution in water is between 4.0 and
7.5. Store in airtight containers.

Units

The first International Standard Preparation (1957) of
phenoxymethylpenicillin contained 1695 units/mg but
was withdrawn in 1968. Despite this, doses of phe-
noxymethylpenicillin are still expressed in units in
some countries.

Phenoxymethylpenicillin 250 mg is equivalent to
about 400 000 units.

Adverse Effects and Precautions

As for Benzylpenicillin, p.213.

Phenoxymethylpenicillin is usually well tolerated but
may occasionally cause transient nausea and diarrhoea.

Potassium content. Each g of phenoxymethylpenicillin po-
tassium contains about 2.6 mmol of potassium.

Interactions

As for Benzylpenicillin, p.214.

Antibacterials. Reduced absorption was reported when phe-
noxymethylpenicillin was given after an oral course of *neomy-
cin*.¹

1. Cheng SH, White A. Effect of orally administered neomycin on
the absorption of penicillin V. *N Engl J Med* 1962; **267**: 1296-7.

Beta blockers. Fatal anaphylactic reactions to phenoxymethyl-
penicillin in 2 patients on *nadolol* and *propranolol* respectively,
might have been potentiated by the beta blocker.¹

1. Berkelman RL, et al. Beta-adrenergic antagonists and fatal ana-
phylactic reactions to oral penicillin. *Ann Intern Med* 1986; **104**:
134.

Antimicrobial Action

Phenoxymethylpenicillin has a range of antimicrobial
activity similar to that of benzylpenicillin (p.214) and
a similar mode of action. It may be less active against
some susceptible organisms, particularly Gram-nega-
tive bacteria.

The mechanisms and patterns of resistance to phe-
noxymethylpenicillin are similar to those of ben-
zylpenicillin.

Pharmacokinetics

Phenoxymethylpenicillin is more resistant to inacti-
vation by gastric acid and is more completely absorbed
than benzylpenicillin from the gastrointestinal tract.
Absorption is usually rapid, although variable, with
about 60% of an oral dose being absorbed. The calci-
um and potassium salts are better absorbed than the

free acid. Peak plasma concentrations of 3 to
5 micrograms/mL have been observed 30 to 60 min-
utes after a dose of 500 mg. The effect of food on ab-
sorption appears to be slight. The plasma half-life of
phenoxymethylpenicillin is about 30 to 60 minutes and
may be increased to about 4 hours in severe renal im-
pairment. About 80% is reported to be protein bound.
The distribution and elimination of phenoxymethyl-
penicillin is similar to that of benzylpenicillin (p.214).
It is metabolised in the liver to a greater extent than
benzylpenicillin; several metabolites have been identi-
fied including penicilloic acid. The unchanged drug
and metabolites are excreted rapidly in the urine. Only
small amounts are excreted in the bile.

Uses and Administration

Phenoxymethylpenicillin is used similarly to ben-
zylpenicillin (p.215) in the treatment or prophylaxis of
infections caused by susceptible organisms, especially
streptococci. It is used only for the treatment of mild to
moderate infections, and not for chronic, severe, or
deep-seated infections since absorption can be unpre-
dictable. Patients treated initially with parenteral ben-
zylpenicillin may continue treatment with oral phe-
noxymethylpenicillin once a satisfactory clinical
response has been obtained. Specific indications for
phenoxymethylpenicillin include anthrax (mild un-
complicated infections), Lyme disease (early stage in
pregnant women or young children), pharyngitis or
tonsillitis, rheumatic fever (primary and secondary
prophylaxis), streptococcal skin infections, and spleen
disorders (pneumococcal infection prophylaxis). For
details of these infections and their treatment, see under
Choice of Antibacterial, p.162.

Administration and dosage. Phenoxymethylpenicillin
is given orally, usually as the potassium or calcium salt,
preferably at least 30 minutes before, or 2 hours after,
food. Benzathine phenoxymethylpenicillin (p.212) is
also used.

Doses are expressed in terms of the equivalent amount
of phenoxymethylpenicillin; 1.1 g of phenoxymethyl-
penicillin calcium and 1.1 g of phenoxymethylpenicil-
lin potassium are each equivalent to about 1 g of phe-
noxymethylpenicillin.

Usual adult doses have been 250 to 500 mg every 6
hours, but the *BNF* recommends up to 1 g every 6
hours in severe infections. Children may be given the
following doses every 6 hours: up to 1 year, 62.5 mg; 1
to 5 years, 125 mg; and 6 to 12 years, 250 mg. The
BNFC recommends that doses be increased to ensure
at least 12.5 mg/kg every 6 hours in severe infection.
Dosage may need to be modified in severe renal im-
pairment.

To prevent recurrences of rheumatic fever, WHO and
the *BNF* recommend 250 mg twice daily.

Preparations

BP 2008: Phenoxymethylpenicillin Oral Solution; Phenoxymethylpenicillin
Tablets;

USP 31: Penicillin V for Oral Suspension; Penicillin V Potassium for Oral
Solution; Penicillin V Potassium Tablets; Penicillin V Tablets.

Proprietary Preparations (details are given in Part 3)

Arg.: Pen Oral; Penagrand; Penfantil; Penicina; **Austral.**: Abboicillin-VK; Cil-
icaine VK; Cilopen VK; LPV; Penhexal VK; **Austria.**: Allicillin; Clacil; Megacil-
lin; Ospen; Pen-V; Penbene; Penoral; Penstad; Star-Pen; **Belg.**: Peni-Oral;
Braz.: Meracilina; Oracilin; Pen-V-Cil; Pen-Ve-Oral; Penicilin-V; Penicigran;
Canad.: Apo-Pen-VK; Nadopen-Vt; Novo-Pen-VK; Nu-Pen-VK; Pen-Vee†;
PVFK†; **Cz.**: InfectoCillin†; Megacillin†; Ospen; Penbene; Penid; **Denm.**:
Calcipen; Pandillin; Primicillin; Rocilin; Vepicombin; **Fin.**: Medicillin; Milcopen;
V-Pen; **Fr.**: Oraciline; Ospen†; **Ger.**: Arcasin; durapenicillin†; InfectoCillin;
Isocillin; Ispenoral; Jenacillin V†; Megacillin oral; P-Mega-Tablinen; Pen Mega;
Pen†; Penbeta; Penhexal; Penicillat†; V-Tablopen†; **Gr.**: Ospen; **Hong Kong.**:
Ospen†; **Hung.**: Ospen; Vegacillin†; **Indon.**: Fenocin; Ospen; **Irl.**:
Calvepen; Koplen; **Israel.**: Rafapen Mega; Rafapen V-K; **Malaysia.**: Beapen;
Ospen; Penoxil V†; **Mex.**: Anapen†; Kavipen; Megapen†; Pen-Vi-K; Pota-
Vi-Kin; **Neth.**: Acipen; Acipen-V; **Norw.**: Apocillin; Calcipen†; Kavipen†;
Rocilin†; Weifapen; **NZ.**: Clilicaine VK; **Philipp.**: Sumapen; **Pol.**: Ospen;
Rus.: Ospen (Oceneh); **S.Afr.**: Betapen; Deltacillin†; Incil; Len VK; Novo V-
K†; Rolab-Pen-VK†; Spec-Pen-VK†; **Singapore.**: Ospen; **Spain.**: Penilevel;
Swed.: Kavapen†; Peceve; Tikacilin; **Switz.**: Brunocillin†; Megacillin†; Os-
pen; pen-V-basq†; Penisol; Phenocillin; Stabilline; **Thai.**: Pen-V; Penser;
Penveno; Servipen-V†; **Turk.**: Cilacil; **USA.**: Pen-Vee K; Veeids; **Venez.**: Os-
pen.

Multi-ingredient. **Spain.**: Penilevel Retard.