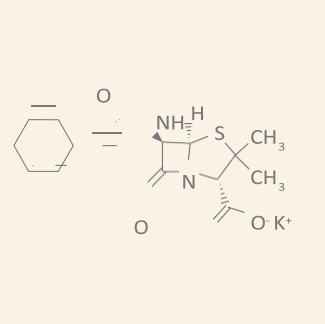
Penicillin

Molecular structure



Product Description

Antibiotics of the penicillin class are derivatives of 6-aminopenicillanic acid consisting of a ß-lactam ring linked to a thiazolidine ring and a side chain. This nucleus is from the condensation of the amino acids L-cysteine and D-valine. The function of penicillins is to inhibit protein synthesis through activity associated with the ß-lactam ring.

The spectrum of bacteria against which penicillins are effective depends on the side chain of individual congeners. The ß-lactam blocks transpeptidation through association with the penicillin-binding proteins (PBPs). These antibiotics are analogs of the substrate, D-alanyl-D-alanine, whose bond is normally broken to form the cross-bridge glycines in transpeptidation. This analog competes for the binding of PBPs. As a result, no cross-bridges are formed and the cell wall becomes weak and eventually ruptures.

Penicillin is inactive against cells with previously made cell walls; it works only against the synthesis of new cell walls and is, as a result, bacteriocidal only to actively growing cells. It is a narrow-spectrum antibiotic against Gram-positive bacteria. Because the activity is derived from the ß-lactam ring, Staphylococcal ß-lactamase confers resistance through cleavage of the ß-lactam ring. Some of the congeners include penicillin G (benzyl penicillin), ampicillin, carbenicil- lin, and amoxicillin.

Penicillin G has narrow-spectrum activity against Gram-positive cocci, however, it is sensitive to penicillinase, making most strains of Staphylococcus aureus resistant.

Product Specification

Mode of action:	Inhibitor of transpeptidation at the final stage of the reaction, thereby preventing the formation of cross-bridges
Spectrum:	- Gram (+)
Microbiological potency:	>1580 I.U./mg

Life Science Production, a Division of Life Science Group Ltd.
Tel: +44 (0) 1234 889180; Email: sales@lifesciencegroup.co.uk
Web: www.lifescienceproduction.co.uk

Conferred Resistance:	β-lactamases, a change in cell wall permeability, or a change in the penicillin-binding proteins
Molecular weight:	372.5
Formula:	C16H17KN2O4S
Appearance:	Liquid: Colourless
	Powder: White to off-white
Working Concentration:	100 I.U./mL
Storage and Stability:	Frozen:- 25°C to -15°C
	Protected from light

Ordering information

Cat. No.	Description	Unit Size	Qty/Pk
30-001-CI	Penicillin-Streptomycin solution, 50x 5,000 I.U./mL Penicillin, 5,000 µg/mL Streptomycin	100 mL	6
30-002-CI	Penicillin-Streptomycin solution, 100x 10,000 I.U./mL Penicillin, 10,000 µg/mL Streptomycin	100 mL	6
30-009-CI	Penicillin-Streptomycin solution with L-Glutamine, 100x, 10,000 I.U./mL Pencillin, 10,000 µg/mL Streptomycin 29.2 mg/mL L-Glutamine	100 mL	6
30-004-CI	Antibiotic-Antimycotic solution 10,000 I.U./mL Penicillin, 10,000 µg/mL Streptomycin 25 µg/mL Amphotericin with 8.5 g/L NaCl	100 mL	6

For Research use only. Not approved for human or veterinary use, for application to humans or animals, or for use in clinical or *in vitro* procedures.

Support

Life Science Production is a division of Life Science Group Ltd.
Life Science Production is ISIA Traceability Certified
Life Science Group Ltd is an ISO 9001:2015 Certified company

To learn more, contact us:
Telephone: +44 (0) 1234 889180
Email: sales@lifesciencegroup.co.uk
Website: www.lifescienceproduction.co.uk
Address: PO Box 1519, Bedford, United Kingdom