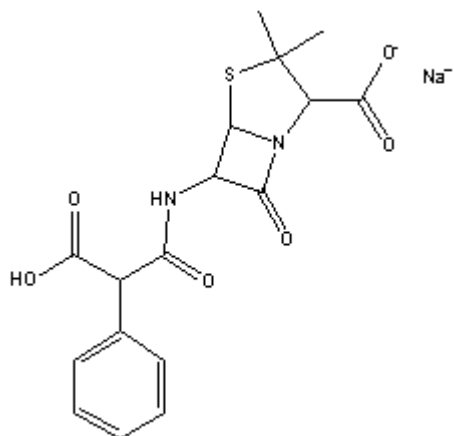


Catalog Number: 195092

## Carbenicillin, Disodium Salt

Structure:



**Molecular Formula:** C<sub>17</sub>H<sub>16</sub>N<sub>2</sub>O<sub>6</sub>SNa<sub>2</sub>

**Molecular Weight:** 422.4

**CAS #** 4800-94-6

**Synonym:**  $\alpha$ -Carboxybenzylpenicillin; BRL-2064; CP-15639-2; Anabactyl; Carbapen; Carbecin; Geopen; Hyoper; Microcillin; Pyocianil; Pyopen; [2S-(2.  $\alpha$ , 5.  $\alpha$ , 6.  $\beta$ )]-6-[(Carboxyphenylacetyl) amino]- 3,3-dimethyl-7-oxo-4-thia-1-azabicyclo [3.2.0] heptane-2-carboxylic acid, disodium salt; N-(2-carboxy- 3,3-dimethyl- 7-oxo-4-thia-1- azabicyclo [3.2.0] hept-6-yl)-2-phenylmalonamic acid, disodium salt; 6-( $\alpha$ -carboxyphenylacetamido) penicillanic acid, disodium salt;  $\alpha$ -phenyl (carboxymethylpenicillin), disodium salt

**Physical Description:** Fine white powder

**Recommended Storage:** +4°C

**pKa** (in water): 3.3

**Description:** Semi-synthetic antibiotic related to penicillin. It is a benzyl penicillin derivative with substitution of  $\alpha$ -carboxyl group on the benzyl side chain. The product interferes with final cell wall synthesis of susceptible bacteria. It is completely ionized in the blood.

Carbencillin disodium is about 50% reversibly protein bound in plasma and its tissue distribution is similar to other penicillins.

Though Carbencillin disodium has substantial *in vitro* activity against a variety of both gram-positive and gram-negative microorganisms, the most important aspect of its profile is in its antipseudomonal and antiproteal effect.

*In vitro* studies have demonstrated the susceptibility of most strains of the following organisms:

<i>Staphylococcus aureus</i> (non-penicillinase producing)	<i>Enterobacter</i> species
<i>Staphylococcus epidermidis</i>	<i>Proteus mirabilis</i>
	<i>Morganella morganii</i> (formerly <i>Proteus morganii</i> )
<i>Streptococcus pneumoniae</i>	<i>Providencia rettgeri</i> (formerly <i>Proteus rettgeri</i> )
<i>Beta-hemolytic Streptococci</i>	Anaerobic bacteria, including:
<i>Streptococcus faecalis</i>	<i>Bacteriodes</i> species
<i>Proteus vulgaris</i>	<i>Peptostreptococcus</i> species
<i>Escherichia coli</i>	<i>Peptococcus</i> species
<i>Salmonella</i> species	<i>Clostridium</i> species
<i>Pseudomonas aeruginosa</i>	<i>Fusobacterium</i> species
<i>Hemophilus influenzae</i>	
<i>Neisseria</i> species	

*In vitro* synergism between Carbencillin disodium and aminoglycosides in certain strains of *Pseudomonas aeruginosa* has been demonstrated.

Some of the pathogenic strains of such microorganisms as *Herellea*, *Mima*, *Citrobacter*, and *Serratia* have shown susceptibility to Carbencillin disodium.

**Resistance:** Most *Klebsiella* species and some *Serratia* species are usually resistant to the action of Carbencillin disodium. Some strains of *Pseudomonas* have developed resistance to Carbencillin disodium fairly rapidly.

Carbencillin disodium is not stable in the presence of penicillinase producing bacteria.

**General Usage:** 105 units/liter (5 – 50 ug/ml) in cell culture; approximately 200 mg/kg *in vivo*. It is typically stable in media at 37° C for approximately 3 days.<sup>5</sup>

**Solubility:** Soluble in water (50 mg/ ml) and alcohol

**References:**

1. *Merck Index*, **12th Ed.**, No. 1838.
2. Naumann, Kempf, *Arzneimittel-Forsch.*, **v. 19**, 1222 (1969)
3. Butler et al., *J. Infec. Dis.*, **v. 122**, Suppl., 81 (1970)
4. Goldenthal, *Toxicol. Appl. Pharmacol.*, **v. 18**, 185
5. Perlman, D., "Use of Antibiotics in cell culture media." *Methods in Enzymology: Cell Culture*, Jakoby, W.B. and Pastan, I.H. (eds.), Academic Press: New York, p. 112 (1979).