SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Ampicillin Capsules BP 500 mg.

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each capsule contains Ampicillin trihydrate BP equivalent to 500 mg of Ampicillin.

3. PHARMACEUTICAL FORM

Ampicillin capsules are presented as size 0, black/pink opaque capsules printed with "AMP 500" on one side and company logo on the other side.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Parenteral usage is indicated where oral dosage is inappropriate. Ampicillin is a broad-spectrum antibacterial indicated for treatment of commonly occurring bacterial infections where a sensitive organism is suspected or proven.

Lower respiratory tract - acute and chronic bronchitis, lobar and bronchopneumonia.

Upper respiratory tract - bacterial pharyngitis, otitis media, chronic bronchial sepsis.

Genito- urinary tract - acute cystitis, pyelonephritis for sensitive infections, gonorrhoea (in combination with probenecid.) and gynaecological infections.

Other - skin and soft tissue infections, dental abscess (as an adjunct to surgical management), enteric fever, intra-abdominal sepsis, peritonitis and septicaemia (in combination with an aminoglycoside or metronidazole).

Other infections including, endocarditis and meningitis.

Ampicillin is inactivated by penicillinases including those produced by Staphylococcus aureus and gram-negative bacteria such as E.coli.
4.2 Posology and method of administration

Route of administration: Oral

Usual adult dosage (including elderly patients):

<table>
<thead>
<tr>
<th>Condition</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ear, nose and throat infections</td>
<td>250mg four times a day.</td>
</tr>
<tr>
<td>Bronchitis: Routine therapy:</td>
<td>250mg four times a day.</td>
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<tr>
<td>High-dosage therapy:</td>
<td>1 g four times a day.</td>
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<tr>
<td>Pneumonia:</td>
<td>500 mg four times a day.</td>
</tr>
<tr>
<td>Urinary tract infections:</td>
<td>500 mg three times a day.</td>
</tr>
<tr>
<td>Gonorrhoea:</td>
<td>2 g orally with 1 g probenecid as a single dose. Repeated doses are recommended for the treatment of females.</td>
</tr>
<tr>
<td>Gastro-intestinal infections:</td>
<td>500-750 mg three to four times daily.</td>
</tr>
<tr>
<td>Enteric: Acute</td>
<td>1-2 g four times a day for two weeks</td>
</tr>
<tr>
<td>Carriers:</td>
<td>1-2 g four times a day for four to twelve weeks</td>
</tr>
</tbody>
</table>

Usual children's dosage (under 10 years): Half adult routine dosage.

All recommended dosages are a guide only. In severe infections the above dosages may be increased, or Ampicillin given by injection. Oral doses of ampicillin should be taken half to one hour before meals.

Consideration should be given to official guidance on the appropriate use of antibacterial agents. Consult local or national prescribing guidelines for antibiotic use before prescribing. Where possible, use only where antibiotic sensitivity is known or suspected.

Renal Impairment:
In the presence of severe renal impairment (creatinine clearance <10ml/min) a reduction in dose or extension of dose interval should be considered. In cases of dialysis, an additional dose should be administered after the procedure.

4.3 Contraindications

Ampicillin should not be given to patients with a history of penicillin hypersensitivity or hypersensitivity to beta-lactam antibiotics (e.g. Ampicillin, penicillins, cephalosporins) or excipients.

4.4 Special warnings and precautions for use

Discontinue treatment if skin rash appears and change to alternative antibiotic.

Before initiating therapy with ampicillin, careful enquiry should be made concerning
previous hypersensitivity reactions to beta-lactam antibiotics.

Serious and occasionally fatal hypersensitivity reactions (anaphylaxis) have been reported in patients receiving beta-lactam antibiotics. Although anaphylaxis is more frequent following parenteral therapy, it has occurred in patients on oral penicillins. These reactions are more likely to occur in individuals with a history of beta-lactam hypersensitivity.

Ampicillin should be avoided if infectious mononucleosis, cytomegalovirus (CMV) and/or acute or chronic leukaemia of lymphoid origin are suspected. The occurrence of a erythematous skin rash has been associated with these conditions and possibly HIV following the administration of ampicillin.

Prolonged use of an anti-infective may occasionally result in the development of super-infection due to overgrowth of non-susceptible organisms e.g. Candida or Pseudomonas.

Care should be taken and dosage should be adjusted in patients with renal impairment (see section 4.2).

Care is necessary when treating spirochaete infections particularly syphilis.

4.5 Interaction with other medicinal products and other forms of interaction

When combined oral contraceptives are given concurrently with ampicillin, there is possibility of reduced contraceptive effect and patients should be warned accordingly.

The hypoprothrombinaemic response to oral anticoagulants may be increased following high intravenous doses of broad-spectrum antibacterials. Oral courses of such drugs may also affect hypoprothrombinaemic response. Phenindione and warfarin: INR can be altered by a course of oral broad-spectrum antibacterials such as ampicillin.

Methotrexate excretion is reduced by penicillins.

Absorption of ampicillin is reduced when taken concomitantly with chloroquine.

Probencid and sulfispyrazone decreases penicillin excretion. Concurrent use with ampicillin may result in increased and prolonged blood levels of ampicillin; giving an increased risk of toxicity.

As probencid prolongs the half-life of this penicillin, it may be used therapeutically for this purpose.

The efficacy of the oral typhoid vaccine may be reduced when ampicillin is co-administered.

Bacteriostatic drugs such as erythromycin, chloramphenicol and tetracycline may interfere with the bactericidal action of ampicillin.

Concurrent administration of allopurinol during treatment with ampicillin can increase
the likelihood of allergic skin reactions.

Ampicillin may interfere with some diagnostic tests e.g. tests for urinary glucose using copper sulphate; direct anti-globulin (Coombs’ test) and some tests for urinary or serum proteins. Tests using bacteria, e.g. the Guthrie test for phenylketonuria using Bacillus subtilis organisms, could also be affected while patients are taking penicillins. It is recommended that when testing for the presence of glucose in urine during ampicillin treatment, enzymatic glucose oxidase methods should be used. Due to the high urinary concentrations of ampicillin, false positive readings are common with chemical methods.

4.6 Pregnancy and lactation

Pregnancy:
Animal studies with ampicillin have shown no teratogenic effects. Ampicillin has been in extensive clinical use since 1961 and suitability in human pregnancy has been well documented in clinical studies. When antibiotic therapy is required during pregnancy, Ampicillin may be considered appropriate. Ampicillin diffuses across the placental barrier into the foetal circulation.

Lactation:
Trace quantities of ampicillin can be detected in breast milk. Adequate human and animal data on the use of Ampicillin during lactation are not available.

4.7 Effects on ability to drive and use machines

Adverse effects on the ability to drive or operate machinery have not been observed.

4.8 Undesirable effects

Side effects are mainly of a mild and transitory nature.

Gastro-intestinal reactions:
Effects include diarrhoea, vomiting, indigestion, nausea, epigastric discomfort; pseudomembraneous colitis and haemorrhagic colitis have been reported occasionally.

Hypersensitivity reactions:
If any hypersensitivity reaction occurs, the treatment should be discontinued. Erythematous maculo-papular rashes, sore mouth and sore, black, hairy tongue have occurred. Skin rash may occur occasionally which may be urticarial or erythematous. An urticarial rash suggests true penicillin hypersensitivity and an erythematous rash which is generally specific to ampicillin. An erythematous type rash may arise if ampicillin is administered to patients with glandular fever. In either case, treatment should be discontinued. Other effects including angioedema and anaphylaxis (see section 4.4) in hypersensitive patients have occasionally occurred. Pruritis has also been reported occasionally. The incidence is higher in patients suffering from infectious mononucleosis, cytomegalovirus, acute or chronic leukaemia of lymphoid
origin and possibly HIV. Purpura has also been reported. Skin reactions such as erythema multiforme and Stevens-Johnson syndrome, and toxic epidermal necrolysis have been reported.

Fever, joint pains, serum sickness-like symptoms have been reported.
Neurological reactions:
Encephalopathy may occur if large doses are given IV.
Particularly with high doses or in renal impairment, CNS toxicity including convulsions have occurred; with prolonged use, paraesthesia.

Renal effects:
Nephropathy and interstitial nephritis have been reported.

Hepatic effects:
As with other beta-lactam antibiotics, hepatitis and cholestatic jaundice have been reported rarely. As with most other antibiotics, a moderate and transient increase in transaminases has been reported.

Haematological effects:
As with other beta-lactams, haematological effects including transient leucopenia, neutropenia, transient thrombocytopenia, haemolytic anaemia and coagulation disorders have been reported rarely.
Prolongation of bleeding time and prothrombin have also been reported rarely.

**Reporting of suspected adverse reactions:**
Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via the Yellow Card Scheme at: [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard).

### 4.9 Overdose

Gastrointestinal effects such as nausea, vomiting and diarrhoea may be evident and should be treated symptomatically. Large overdosage will produce very high urinary concentrations, particularly after parenteral administration. Problems are unlikely if adequate fluid intake and urinary output are maintained. However, crystalluria is a possibility. More specific measures may be necessary in patients with impaired renal function. Ampicillin may be removed from the circulation by haemodialysis.

### 5. PHARMACOLOGICAL PROPERTIES

#### 5.1 Pharmacodynamic Properties

Ampicillin is a bactericidal and acts by inhibiting cell wall synthesis, probably by acylation of membrane-bound transpeptidase enzymes. This prevents cross linkage of peptidoglycan chains which is necessary for bacterial cell wall strength and rigidity. Also, cell division and growth are inhibited and lysis and elongation of susceptible bacteria frequently occur. Rapidly dividing bacteria are most susceptible to the action of penicillins.
5.2 Pharmacokinetic Properties

Oral absorption of ampicillin (35-50%) is impaired by presence of food in the stomach. When ampicillin is administered IM, a much higher peak level is reached within 30 minutes than by the oral route. Ampicillin is evenly distributed throughout most body tissues and with the exception of the kidney and liver, tissue concentrations are lower than simultaneous plasma levels in healthy individuals. Ampicillin exhibits low plasma protein binding (17-18%). Twelve to fifty per cent of an ampicillin dose undergoes hepatic biotransformation. About 20 - 60 % of an oral dose and 50 - 58 % of an IM dose of ampicillin is excreted unchanged in the urine. A small amount of ampicillin is excreted in the bile.

5.3 Preclinical safety data

There are no pre-clinical data of relevance to the prescriber which are additional to that already included in other sections of the SPC.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients
Sodium Starch Glycolate
Magnesium Stearate
Capsule Body
Erythrosine (E127)
Titanium Dioxide (E171)
Water
Sodium Laurilsulfate
Gelatin
Capsule Cap
Black Iron Oxide (E172)
Titanium Dioxide (E171)
Water
Sodium Laurilsulfate
Gelatin
Printing Ink
Titanium Dioxide (E171)
Polyoxyethylene 20 Sorbitan Mono-oleate
Shellac

6.2 Incompatibilities

Ampicillin should not be mixed with blood products. Other proteinaceous fluids such as protein hydrolysates, or with intravenous lipid emulsions. If
ampicillin is prescribed concurrently with an aminoglycoside, the antibiotics should not be mixed in syringe, IV fluid container or giving set because loss of activity of the aminoglycoside can occur under these conditions.

6.3 Shelf Life

Opaque plastic containers: 36 months.
Blister packing: 24 months.

6.4 Special Precautions for Storage

Protect from heat, light and moisture.
Keep out of the reach of children.

6.5 Nature and Contents of Container

Ampicillin capsules are packed in the following containers and closures.

1. Opaque plastic containers (securitainers) with plastic caps in pack sizes of 9, 10, 14, 15, 20, 21, 28, 30, 50, 56, 84, 100, 250, 500 and 1000 capsules.

2. Opaque plastic containers composed of either high density polypropylene with a tamper evident or child resistant tamper evident closure composed of high density polyethylene for all pack sizes (9, 10, 14, 15, 20, 21, 28, 30, 50, 56, 84, 100, 250, 500 and 1000) with a packing inclusion of standard polyether foam or polyethylene or polypropylene made filler.

3. Blister packs of aluminium/opaque PVC. It is subsequently packed in printed boxboard cartons in pack sizes of 9, 10, 14, 15, 20, 21, 28, 30, 56 and 84.

6.6 Special precautions for disposal

No special instructions for use/handling.

7. MARKETING AUTHORISATION HOLDER

Crescent Pharma Limited
UNITS 3 AND 4, QUIDHAMPTON BUSINESS UNITS
POLHAMPTON LANE
OVERTON
8. **MARKETING AUTHORISATION NUMBER**

PL 20416/0013

9. **DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

26/01/2009

10. **DATE OF REVISION OF THE TEXT**

30/01/2014