Cefalexin 250 and 500mg Capsules

PL 20532/0075-6

UKPAR

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Cefalexin 250 and 500mg Capsules

PL 20532/0075-6

LAY SUMMARY

On 22nd September 2010, the MHRA granted Aurobindo Pharma Limited Marketing Authorisations (licences) for the medicinal products Cefalexin 250 and 500mg capsules. These medicines are only available on prescription from your doctor.

Cefalexin is an antibiotic. It belongs to a group of antibiotics that is called cephalosporins. These types of antibiotics are fairly similar to penicillin.

Cefalexin works by killing some types of bacteria that can cause various sorts of infection in people. Like all antibiotics, cefalexin is only able to kill some types of bacteria and is so suitable for treating some types of infection only.

Cefalexin is used to treat:

- bacterial infections of the ears (otitis media)
- infections of the lungs and breathing airways.
- infection of the urinary bladder (cystitis).
- kidney and prostate infections.
- bone and joint infections
- dental infections.
- Skin infections such as boils and infected wounds.

No new or unexpected safety concerns arose from these applications and it was, therefore, judged that the benefits of taking Cefalexin 250 and 500mg capsules outweigh the risks, hence Marketing Authorisations have been granted.

Cefalexin 250 and 500mg Capsules

PL 20532/0075-6

SCIENTIFIC DISCUSSION

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INTRODUCTION

Based on the review of the data on quality, safety and efficacy, the UK granted Marketing Authorisations for the medicinal products Cefalexin 250 and 500mg capsules (PL 20532/0075-6) on the 22nd September 2010. These are prescription-only medicines (POM).

These are national abridged applications for Cefalexin 250 and 500mg capsules submitted under article 10 (1) of Directive 2001/83/EC, as amended. These products are cross-referring to Keflex Capsules 250 and 500mg Capsules, which have been licensed in the UK on 30th September and April 1985 respectively (PL 00006/5103R and PL 00006/0076R respectively).

Cefalexin is a first generation orally active cephalosporin and is a broad-spectrum (gram-positive and gram-negative bacteria) antibiotic. Like other β-lactam drugs, cefalexin exerts antibacterial activity by binding to and inhibiting the action of certain bacterial cell wall synthetic enzymes, namely the penicillin binding proteins. This results in the interruption of cell wall (peptidoglycan) biosynthesis, which leads to bacterial cell lysis and death.

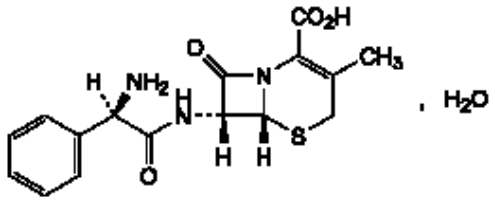
Details of a pharmacovigilance system have been provided with this application and are satisfactory. A suitable justification for non-submission of the Risk Management Plan has been provided.

PHARMACEUTICAL ASSESSMENT

DRUG SUBSTANCE

Nomenclature
rINN: Cefalexin monohydrate
Chemical names: (6R,7R)-7-[[(2R)-2-Amino-2-phenylacetyl]amino]-3-methyl-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid monohydrate.

Structure



Molecular formula: $C_{16}H_{17}N_3O_{4S}.H_2O$
Molecular weight: 365.4

Cefalexin monohydrate is a white to almost white crystalline powder, which is sparingly soluble in water and practically insoluble in alcohol.

All aspects of the manufacture and control of the active substance are covered by a European Directorate for the Quality of Medicines (EDQM) Certificate of Suitability.

DRUG PRODUCT

Other ingredients

Other ingredients consist of pharmaceutical excipients, namely cellulose microcrystalline, croscarmellose sodium, magnesium stearate, gelatin, sodium laurilsulfate, patent blue (E131), quinoline yellow (E104), titanium dioxide (E171), shellac, dehydrated alcohol, isopropyl alcohol, butyl alcohol, propylene glycol, strong ammonia solution, black iron oxide (E172), potassium hydroxide, and purified water.

All excipients used comply with their respective European Pharmacopoeia monograph with the exception of patent blue (E131) and quinoline yellow (E104) which comply with in-house specification. Shellac, butyl alcohol, black iron oxide (E172) and potassium hydroxide comply with National Formulae and dehydrated alcohol, isopropyl alcohol, propylene glycol and purified water comply with USP.

Satisfactory Certificates of Analysis have been provided for all excipients.

Pharmaceutical development

Suitable pharmaceutical development data have been provided for these applications. Comparable dissolution and impurity profile are provided for these products versus the originator product.

Manufacture
A description and flow-chart of the manufacturing method have been provided. In-process controls are satisfactory based on process validation data and controls on the finished product. Process validation has been carried out on batches of the product. The results appear satisfactory.

Finished product specification
The finished product specification is satisfactory. Test methods have been described and adequately validated, as appropriate. Batch data have been provided and comply with the release specification. Certificates of Analysis have been provided for any working standards used.

Container Closure System
The product is packaged in polyvinylchloride/polyethylene/polyvinyl dichloride or polyvinylchloride/ACLAR-aluminium blisters with pack sizes of 14, 28, 56 and 84 capsules and high density polyethylene bottle with a pack size of 100 capsules. Specifications and Certificates of Analysis for all packaging types used have been provided. These are satisfactory. All primary product packaging complies with EU legislation regarding contact with food.

Stability
Finished product stability studies have been conducted in accordance with current guidelines. Based on the results, a shelf-life of 3 years with storage conditions of 'Store in the original package' (for the blister pack) and 'Keep the container tightly closed '(for the bottles) are set and these are acceptable.

Summary of Product Characteristics (SPC), Patient Information Leaflet (PIL) and Labelling
The SPC, PIL and labelling are pharmaceutically satisfactory.

User testing of the package leaflet has been accepted, based on a bridging report provided by the applicant making reference to the successful user-testing of the PIL for Cefalexin Aurobindo 250/500/750 and 1000mg film-coated tablets (parent PIL). The visual presentation and textual content of the daughter PIL Cefalexin 250 and 500mg capsules is comparable to that of the parent PIL. The bridging report is accepted.

MAA Form
The MAA form is pharmaceutically satisfactory.

Expert Report
The pharmaceutical expert report is written by an appropriately qualified person and is a suitable summary of the pharmaceutical aspects of the dossier.

Conclusion
There are no objections to the approval of these products from a pharmaceutical point of view.

PRECLINICAL ASSESSMENT

The pharmacodynamic, pharmacokinetic and toxicological properties of the product are well-known. Thus, the applicant has not provided additional studies and further studies are not required.

A preclinical expert report has been provided, written by an appropriately qualified person. This is satisfactory.

A suitable justification has been provided for non-submission of an environmental risk assessment.

There are no objections to the approval of these products from a preclinical point of view.

CLINICAL ASSESSMENT

CLINICAL PHARMACOLOGY

BIOEQUIVALENCE

This study was an open label randomised, 2-treatment, 2-sequence, 2-period, crossover, single-dose comparative oral bioavailability study, comparing Cefalexin 500mg capsules (Aurobindo Pharma Limited) and Keflex 500mg Capsules (Elli Lilly and Company, UK) in healthy volunteers under fasting conditions.

The wash-out period was 7 days. Serial blood samples were drawn before dosing and at 0.25, 0.5, 0.75, 1.0, 1.25, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 7.0 and 8.0 hours post administration.

Summary of Statistical Analysis Results

Statistics			**C_{max} (µg/mL)**	**AUC_{0-t} (hr.µg/mL)**	**$AUC_{0-\infty}$ (hr.µg/mL)**
Ratio (T/R %)	**Ln-transformed**		101.60	97.69	97.83
Intra-subject CV (%)			19.50	4.56	4.48
90%CI	**Ln transformed**	**Lower**	92.70	95.60	95.78
		Upper	111.36	99.82	99.93
		Power	99	100	100

The results show that the 90% confidence intervals for AUC ratios (both $_{0-t}$ and $_{0-inf}$) and C_{max} all fell within the acceptable range (80-125%). Bioequivalence has been shown for the test formulation (Cefalexin 500mg capsules) and the reference formulation (Keflex 500mg Capsules). The extrapolation of results from the Bioequivalence study conducted with the 500mg strength capsules to the lower strength formulations has been appropriately justified and is acceptable.

EFFICACY
No new efficacy data have been submitted and none are required for these applications.

SAFETY
No new safety data have been submitted and none are required for these applications.

EXPERT REPORT
The clinical expert report is written by an appropriately qualified physician and is a suitable summary of the clinical aspects of the dossier.

SUMMARY OF PRODUCT CHARACTERISTICS
These are satisfactory.

PATIENT INFORMATION LEAFLET
This is satisfactory.

LABELLING
These are satisfactory.

MARKETING AUTHORISATION FORMS
These are satisfactory.

CONCLUSIONS
The Applicant has demonstrated that the products and the reference compounds are bioequivalent.

There are no objections to the approval of these products from a clinical point of view.

OVERALL CONCLUSION AND RISK BENEFIT ASSESSMENT

QUALITY

The important quality characteristics of Cefalexin 250mg and 500mg capsules are well defined and controlled. The specifications and batch analytical results indicate consistency from batch to batch. There are no outstanding quality issues that would have a negative impact on the benefit/risk balance.

PRECLINICAL

No new preclinical data were submitted and none are required for applications of this type.

EFFICACY

No new data have been submitted and none are required for applications of these type.

Bioequivalence has been demonstrated between the applicant's Cefalexin 500mg capsules and the reference product Keflex 500mg Capsules. The results can be extrapolated to the lower strength 250mg capsules.

No new or unexpected safety concerns arise from these applications.

The SPC and PIL are satisfactory and consistent with that of the reference product. Satisfactory labelling has also been submitted.

RISK BENEFIT ASSESSMENT

The quality of the product is acceptable and no new preclinical or clinical safety concerns have been identified. Extensive clinical experience with Cefalexin 250mg and 500mg capsules is considered to have demonstrated the therapeutic value of the compound. The risk benefit is, therefore, considered to be positive.

Cefalexin 250 and 500mg Capsules

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STEPS TAKEN FOR ASSESMENT

1	The MHRA received the marketing authorisation applications on 7th February 2005
2	Following standard checks and communication with the applicant the MHRA considered the applications valid on 17th February 2005
3	Following assessment of the applications the MHRA requested further information relating to the quality dossier on 25th July 2005, 8th September 2005 and 16th November 2005 and to the clinical dossier on 17th November 2005, 26th September 2006, 14th March 2008 and 27th October 2009
4	The applicant responded to the MHRA's requests, providing further information to the quality section on 19th August 2005, 8th September 2005, 20th February 2006 and 11th June 2007 and to the clinical section 20th February 2006, 2nd June 2008 and 19th May 2010
5	The applications were determined on 22nd September 2010

Cefalexin 250 and 500mg Capsules

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STEPS TAKEN AFTER AUTHORISATION - SUMMARY

Date submitted	Application type	Scope	Outcome

SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Cefalexin 250 mg capsules

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each hard gelatin capsule contains 250 mg cefalexin (as cefalexin monohydrate Ph. Eur.).

For a full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Capsule, hard.
Dark blue opaque/white size "2" hard gelatin capsule filled with off white granular powder and imprinted with 'A 75' on dark blue opaque cap and '250 mg' on white body with black ink.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Cefalexin is a semi-synthetic cephalosporin antibiotic for oral administration.

Cefalexin is indicated in the treatment of the following infections due to susceptible micro-organisms:
- Respiratory tract infections
- Otitis media
- Skin and soft tissue infections
- Bone and joint infections
- Genito-urinary tract infections (eg. cystitis, acute prostatitis, etc.)
- Dental infections

Consideration should be given to official guidance on the appropriate use of antibacterial agents.

4.2 Posology and method of administration

Cefalexin is administered orally.

Adults:
The adult dosage ranges from 1-4 g daily in divided doses; most infections will respond to a dosage of 500 mg every 8 hours. For skin and soft tissue infections, streptococcal pharyngitis, and mild, uncomplicated urinary tract infections, the usual dosage is 250 mg every 6 hours, or 500 mg every 12 hours.
For more severe infections or those caused by less susceptible organisms, larger doses may be needed. If daily doses of cefalexin greater than 4g are required, parenteral cephalosporins, in appropriate doses, should be considered.

Patients with impaired renal function
Reduce dosage if renal function is markedly impaired (see section 4.4).

Elderly patients:
The recommended dose for adults should be used in elderly patients except those with impaired renal function (see section 4.4).

Children:
The usual recommended daily dosage for children is 25-50 mg/kg (10-20 mg/lb) in divided doses. For skin and soft tissue infections, streptococcal pharyngitis, and mild, uncomplicated urinary tract infections, the total daily dose may be divided and administered every 12 hours. For most infections the following schedule is suggested:

Children under 5 years:
125 mg every 8 hours. Cefalexin 250 mg capsules are not suitable for this regimen since they cannot be broken in half.

Children 5 years and over:
250 mg every 8 hours.

In severe infections, the dosage may be doubled. In the therapy of otitis media, clinical studies have shown that a dosage of 75 to 100 mg/kg/day in 4 divided doses is required.

In the treatment of beta-haemolytic streptococcal infections, a therapeutic dose should be administered for at least 10 days.

4.3 Contraindications
- Hypersensitivity to cefalexin or to any of the excipients.
- In patients with known allergy to the cephalosporin group of antibiotics.

4.4 Special warnings and precautions for use
Before instituting therapy with cefalexin, every effort should be made to determine whether the patient has had previous hypersensitivity reactions to the cephalosporins, penicillins, or other drugs. Cefalexin should be given cautiously to penicillin-sensitive patients. There is some clinical and laboratory evidence of partial cross-allergenicity of the penicillins and cephalosporins. Patients have had severe reactions (including anaphylaxis) to both drugs.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics, including macrolides, semi-synthetic penicillins, and cephalosporins. It is important, therefore, to consider its diagnosis in patients who develop diarrhoea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening. Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, appropriate measures should be taken.

If an allergic reaction to cefalexin occurs, the drug should be discontinued and the patient treated with the appropriate agents.

Prolonged use of cefalexin may result in the overgrowth of non-susceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Cefalexin should be administered with caution in the presence of markedly impaired renal function. Careful clinical and laboratory studies should be made because safe dosage may be lower than that usually recommended.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In haematological studies, or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side, or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognised that a positive Coombs' test may be due to the drug. A false positive reaction for glucose in the urine may occur with Benedict's or Fehling's solutions, or with copper sulphate test tablets.

4.5 Interaction with other medicinal products and other forms of interaction
As with other beta-lactam drugs, renal excretion of cefalexin is inhibited by probenecid.

Concurrent administration with certain other drug substances, such as aminoglycosides, other cephalosporins, or furosemide, and similar potent diuretics, may increase the risk of nephrotoxicity.

In a single study of 12 healthy subjects given single 500 mg doses of cefalexin and metformin, plasma metformin C_{max} and AUC increased by an average of 34 % and 24 %, respectively, and metformin renal clearance decreased by an average of 14 %. No side effects were reported in the 12 healthy subjects in this study. No information is available about the interaction of cefalexin and metformin following multiple dose administration. The clinical significance of this study is unclear, particularly as no cases of "lactic acidosis" have been reported in association with concomitant metformin and cefalexin treatment.

4.6 Pregnancy and lactation

Pregnancy

There are no adequate and well controlled studies in pregnant women. Although animal studies have shown no evidence of teratogenicity, caution should be exercised when prescribing cefalexin during pregnancy (see section 5.3).

Lactation

Cefalexin is excreted in human milk. Caution should be exercised when cefalexin is administered to a nursing woman.

4.7 Effects on ability to drive and use machines

Dizziness, agitation, confusion and hallucinations have been reported during treatment with cefalexin, which may impair the ability to drive and use machines.

4.8 Undesirable effects

Adverse events that have been reported in cefalexin trials are categorised below, according to system organ class and frequency.

Frequencies are defined as:
very common (≥ 1/10)
common (≥ 1/100 to <1/10)
uncommon (≥ 1/1,000 to <1/100)
rare (≥ 1/10,000 to <1/1,000)
very rare (<1/10,000), not known (cannot be estimated from the available data).

Undesirable effects for cefalexin occur at a frequency of 3-6%.

Investigations
Uncommon: Increase in ASAT and ALAT (reversible)
Frequency not known: Positive direct Coombs test. False positive reaction to glucose in the urine

Blood and lymphatic system disorders
Uncommon: Eosinophilia
Rare: Neutropenia, thrombocytopenia, haemolytic anaemia

Nervous system disorders
Rare: Headache, dizziness

Gastrointestinal disorders
Common: Diarrhoea, nausea.
Rare: Abdominal pain, vomiting, dyspepsia, pseudomembranous colitis

Renal and urinary disorders
Rare: Reversible interstitial nephritis

Skin and subcutaneous tissue disorders
Uncommon: Rash, urticaria, pruritus
Rare: Stevens-Johnson syndrome, erythema multiforme, toxic epidermal necrolysis (Lyell's syndrome), angioedema

Musculoskeletal and connective tissue disorders
Frequency not known: Arthralgia, arthritis

Infections and infestations
Rare: Genital and anal pruritus, vaginitis
Frequency not known: Vaginal candidiasis

General disorders and administration site conditions
Rare: Tiredness
Frequency not known: Fever

Immune system disorders
Rare: Anaphylactic reaction

Hepatobiliary disorders
Rare: Hepatitis, cholestatic icterus

Psychiatric disorders
Frequency not known: Hallucinations, agitation, confusion

4.9 Overdose

Symptoms of oral overdose may include nausea, vomiting, epigastric distress, diarrhoea, and haematuria.

In the event of severe overdosage, general supportive care is recommended, including close clinical and laboratory monitoring of haematological, renal and hepatic functions, and coagulation status until the patient is stable. Forced diuresis, peritoneal dialysis, haemodialysis, or charcoal haemoperfusion have not been established as beneficial for an overdose of cefalexin. It would be extremely unlikely that one of these procedures would be indicated.

Unless 5 to 10 times the normal total daily dose has been ingested, gastro-intestinal decontamination should not be necessary.

There have been reports of haematuria, without impairment of renal function, in children accidentally ingesting more than 3.5g of cefalexin in a day. Treatment has been supportive (fluids) and no sequelae have been reported.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Antibacterial, beta-lactam cephalosporin of first generation.
ATC code: J01DB01.

Mechanism of action
Like other β-lactam drugs, cefalexin exerts antibacterial activity by binding to and inhibiting the action of certain bacterial cell wall synthetic enzymes, namely the penicillin binding proteins. This results in the interruption of cell wall (peptidoglycan) biosynthesis, which leads to bacterial cell lysis and death.

Mechanisms of Resistance
Bacterial resistance to cefalexin may be due to one or more of the following mechanisms:
hydrolysis of beta-lactamases. Cefalexin may be efficiently hydrolysed by certain of the extended-spectrum beta-lactamases (ESBLs) and by the chromosomally-encoded (AmpC) enzyme that may be induced or stably derepressed in certain aerobic gram-negative bacterial species.
reduced affinity of penicillin-binding proteins for cefalexin.
outer membrane impermeability, which restricts access of cefalexin to penicillin binding proteins in gram-negative organisms.

Breakpoints:
The clinical minimum inhibitory concentration (MIC) breakpoints (EUCAST, May 2009) are as follows:

Pathogen	Sensitive	Resistant
Enterobacteriaceae	≤ 16	> 16

Susceptibility of staphylococci to cefalexin is inferred from the methicillin susceptibility. The susceptibility of streptococcus groups A, B, C and G can be inferred from their susceptibility to benzylpenicillin.
Non-species related breakpoints: insufficient data.

Susceptibility
The prevalence of acquired resistance may vary geographically and with time for selected species and local information on resistance is desirable, particularly when treating severe infections. As necessary, expert advice should be sought when the local prevalence of resistance is such that the utility of the agent in at least some types of infections is questionable.

Commonly susceptible species
Aerobes, Gram positive:
Staphylococcus aureus (methicillin – susceptible)
Streptococcus agalactiae
Streptococcus pneumoniae
Streptococcus pyogenes
Aerobes, Gram negative:
Escherichia coli
Moraxella catarrhalis
Anaerobes:
Peptostreptococcus species
Species for which resistance may be a problem
Gram-negative aerobes:
Citrobacter species
Enterobacter species
Morganella morganii
Inherantly Resistant species
Gram-negative aerobes:
Haemophilus influenzae

5.2 Pharmacokinetic properties
Cefalexin is acid stable and may be given without regard to meals. It is rapidly absorbed after oral administration. Following doses of 250 mg, 500 mg, and 1g, average peak serum levels of approximately 9, 18, and 32 mg/l, respectively, were obtained at 1 hour. Measurable levels were present 6 hours after administration. Cefalexin is excreted in the urine by glomerular filtration and tubular secretion. Studies showed that over 90% of the drug was excreted unchanged in the urine within 8 hours. During this period, peak urine concentrations following the 250 mg, 500 mg, and 1g doses were approximately 1,000, 2,200, and 5,000 mg/l, respectively.
Cefalexin is almost completely absorbed from the gastro-intestinal tract, and 75-100% is rapidly excreted in active form in the urine. Absorption is slightly reduced if the drug is administered with food. The half-life is approximately 60 minutes in patients with normal renal function. Haemodialysis and peritoneal dialysis will remove cefalexin from the blood.

Peak blood levels are achieved one hour after administration, and therapeutic levels are maintained for 6-8 hours. Approximately 80% of the active drug is excreted in the urine within 6 hours. No accumulation is seen with dosages above the therapeutic maximum of 4 g/day.

The half-life may be increased in neonates due to their renal immaturity, but there is no accumulation when given at up to 50 mg/kg/day.

5.3 Preclinical safety data
The daily oral administration of cefalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, foetal viability, foetal weight, or litter size.

Cefalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals.

The oral LD_{50} of cefalexin in rats is 5,000 mg/kg.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Cellulose microcrystalline
Croscarmellose sodium
Magnesium stearate

Capsule shell
Gelatin
Sodium laurilsulfate
Patent blue (E131)
Quinoline yellow (E104)
Titanium dioxide (E171)

Printing ink
Shellac
Dehydrated alcohol
Isopropyl alcohol
Butyl alcohol
Propylene glycol
Strong ammonia solution
Black iron oxide (E172)
Potassium hydroxide
Purified water

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

3 years.

6.4 Special precautions for storage

This medicinal product does not require any special temperature conditions.

Store in the original package (for blisters).

Keep the container tightly closed (for bottles).

6.5 Nature and contents of container

1) PVC/PE/PVdC or PVC/ACLAR-Aluminium blisters of 14/28/56/84 capsules. The blisters are packed in an outer carton.

2) HDPE bottle of 100 capsules.
Not all pack sizes may be marketed.

6.6 Special precautions for disposal

Any unused product or waste material should be disposed off in accordance with local requirements.

7 MARKETING AUTHORISATION HOLDER

Aurobindo Pharma Limited,

Ares, Odyssey Business Park,

West End Road,

South Ruislip HA4 6QD,

United Kingdom.

Tel: ++44 20 8845 8811.

Fax: ++44 20 8845 8795.

8 MARKETING AUTHORISATION NUMBER(S)
PL 20532/0075

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION
22/09/2010

10 DATE OF REVISION OF THE TEXT
22/09/2010

SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Cefalexin 500 mg capsules

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each hard gelatin capsule contains 500 mg cefalexin (as cefalexin monohydrate Ph. Eur.).

For a full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Capsule, hard.

Dark blue opaque/light blue opaque size "0" hard gelatin capsule filled with off white granular powder and imprinted with 'A 76' on dark blue opaque cap and '500 mg' on light blue opaque body with black ink.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Cefalexin is a semi-synthetic cephalosporin antibiotic for oral administration.

Cefalexin is indicated in the treatment of the following infections due to susceptible micro-organisms:
- Respiratory tract infections
- Otitis media
- Skin and soft tissue infections
- Bone and joint infections
- Genito-urinary tract infections (eg. cystitis, acute prostatitis, etc.)
- Dental infections

Consideration should be given to official guidance on the appropriate use of antibacterial agents.

4.2 Posology and method of administration

Cefalexin is administered orally.

Adults:

The adult dosage ranges from 1-4g daily in divided doses; most infections will respond to a dosage of 500 mg every 8 hours. For skin and soft tissue infections, streptococcal pharyngitis, and mild, uncomplicated urinary tract infections, the usual dosage is 250 mg every 6 hours, or 500 mg every 12 hours.

For more severe infections or those caused by less susceptible organisms, larger doses may be needed. If daily doses of cefalexin greater than 4g are required, parenteral cephalosporins, in appropriate doses, should be considered.

Patients with impaired renal function

Reduce dosage if renal function is markedly impaired (see section 4.4).

Elderly patients:

The recommended dose for adults should be used in elderly patients except those with impaired renal function (see section 4.4).

Children:

The usual recommended daily dosage for children is 25-50 mg/kg (10-20 mg/lb) in divided doses. For skin and soft tissue infections, streptococcal pharyngitis, and mild, uncomplicated urinary tract infections, the total daily dose may be divided and administered every 12 hours. For most infections the following schedule is suggested:

Children under 5 years:
125 mg every 8 hours.

Children 5 years and over:
250 mg every 8 hours.

Cefalexin 500 mg capsules are not suitable for these dose regimens.

In severe infections, the dosage may be doubled. In the therapy of otitis media, clinical studies have shown that a dosage of 75 to 100 mg/kg/day in 4 divided doses is required.

In the treatment of beta-haemolytic streptococcal infections, a therapeutic dose should be administered for at least 10 days.

4.3 Contraindications
Hypersensitivity to cefalexin or to any of the excipients.
In patients with known allergy to the cephalosporin group of antibiotics.

4.4 Special warnings and precautions for use
Before instituting therapy with cefalexin, every effort should be made to determine whether the patient has had previous hypersensitivity reactions to the cephalosporins, penicillins, or other drugs. Cefalexin should be given cautiously to penicillin-sensitive patients. There is some clinical and laboratory evidence of partial cross-allergenicity of the penicillins and cephalosporins. Patients have had severe reactions (including anaphylaxis) to both drugs.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics, including macrolides, semi-synthetic penicillins, and cephalosporins. It is important, therefore, to consider its diagnosis in patients who develop diarrhoea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening. Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, appropriate measures should be taken.

If an allergic reaction to cefalexin occurs, the drug should be discontinued and the patient treated with the appropriate agents.

Prolonged use of cefalexin may result in the overgrowth of non-susceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Cefalexin should be administered with caution in the presence of markedly impaired renal function. Careful clinical and laboratory studies should be made because safe dosage may be lower than that usually recommended.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In haematological studies, or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side, or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognised that a positive Coombs' test may be due to the drug. A false positive reaction for glucose in the urine may occur with Benedict's or Fehling's solutions, or with copper sulphate test tablets.

4.5 Interaction with other medicinal products and other forms of interaction
As with other beta-lactam drugs, renal excretion of cefalexin is inhibited by probenecid. Concurrent administration with certain other drug substances, such as aminoglycosides, other cephalosporins, or furosemide, and similar potent diuretics, may increase the risk of nephrotoxicity.

In a single study of 12 healthy subjects given single 500 mg doses of cefalexin and metformin, plasma metformin C_{max} and AUC increased by an average of 34 % and 24 %, respectively, and metformin renal clearance decreased by an average of 14 %. No side effects were reported in the 12 healthy subjects in this study. No information is available

about the interaction of cefalexin and metformin following multiple dose administration. The clinical significance of this study is unclear, particularly as no cases of "lactic acidosis" have been reported in association with concomitant metformin and cefalexin treatment.

4.6 Pregnancy and lactation

Pregnancy

There are no adequate and well controlled studies in pregnant women. Although animal studies have shown no evidence of teratogenicity, caution should be exercised when prescribing cefalexin during pregnancy (see section 5.3).

Lactation

Cefalexin is excreted in human milk. Caution should be exercised when cefalexin is administered to a nursing woman.

4.7 Effects on ability to drive and use machines

Dizziness, agitation, confusion and hallucinations have been reported during treatment with cefalexin, which may impair the ability to drive and use machines.

4.8 Undesirable effects

Adverse events that have been reported in cefalexin trials are categorised below, according to system organ class and frequency.

Frequencies are defined as:
very common (≥ 1/10)
common (≥ 1/100 to <1/10)
uncommon (≥ 1/1,000 to <1/100)
rare (≥ 1/10,000 to <1/1,000)
very rare (<1/10,000), not known (cannot be estimated from the available data).

Undesirable effects for cefalexin occur at a frequency of 3-6%.

Investigations
Uncommon: Increase in ASAT and ALAT (reversible)
Frequency not known: Positive direct Coombs test. False positive reaction to glucose in the urine

Blood and lymphatic system disorders
Uncommon: Eosinophilia
Rare: Neutropenia, thrombocytopenia, haemolytic anaemia

Nervous system disorders
Rare: Headache, dizziness

Gastrointestinal disorders
Common: Diarrhoea, nausea.
Rare: Abdominal pain, vomiting, dyspepsia, pseudomembranous colitis

Renal and urinary disorders
Rare: Reversible interstitial nephritis

Skin and subcutaneous tissue disorders
Uncommon: Rash, urticaria, pruritus
Rare: Stevens-Johnson syndrome, erythema multiforme, toxic epidermal necrolysis (Lyell's syndrome), angioedema

Musculoskeletal and connective tissue disorders
Frequency not known: Arthralgia, arthritis

Infections and infestations
Rare: Genital and anal pruritus, vaginitis
Frequency not known: Vaginal candidiasis

General disorders and administration site conditions
Rare: Tiredness
Frequency not known: Fever

Immune system disorders
Rare: Anaphylactic reaction

Hepatobiliary disorders
Rare: Hepatitis, cholestatic icterus

Psychiatric disorders
Frequency not known: Hallucinations, agitation, confusion

4.9 Overdose

Symptoms of oral overdose may include nausea, vomiting, epigastric distress, diarrhoea, and haematuria.

In the event of severe overdosage, general supportive care is recommended, including close clinical and laboratory monitoring of haematological, renal and hepatic functions, and coagulation status until the patient is stable. Forced diuresis, peritoneal dialysis, haemodialysis, or charcoal haemoperfusion have not been established as beneficial for an overdose of cefalexin. It would be extremely unlikely that one of these procedures would be indicated.

Unless 5 to 10 times the normal total daily dose has been ingested, gastro-intestinal decontamination should not be necessary.
There have been reports of haematuria, without impairment of renal function, in children accidentally ingesting more than 3.5g of cefalexin in a day. Treatment has been supportive (fluids) and no sequelae have been reported.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Antibacterial, beta-lactam cephalosporin of first generation.
ATC code: J01DB01.
Mechanism of action

Like other β-lactam drugs, cefalexin exerts antibacterial activity by binding to and inhibiting the action of certain bacterial cell wall synthetic enzymes, namely the penicillin binding proteins. This results in the interruption of cell wall (peptidoglycan) biosynthesis, which leads to bacterial cell lysis and death.
Mechanisms of Resistance

Bacterial resistance to cefalexin may be due to one or more of the following mechanisms:
hydrolysis of beta-lactamases. Cefalexin may be efficiently hydrolysed by certain of the extended-spectrum beta-lactamases (ESBLs) and by the chromosomally-encoded (AmpC) enzyme that may be induced or stably derepressed in certain aerobic gram-negative bacterial species.
reduced affinity of penicillin-binding proteins for cefalexin.
outer membrane impermeability, which restricts access of cefalexin to penicillin binding proteins in gram-negative organisms.

Breakpoints:
The clinical minimum inhibitory concentration (MIC) breakpoints (EUCAST, May 2009) are as follows:

Pathogen	Sensitive	Resistant
Enterobacteriaceae	≤ 16	> 16

Susceptibility of staphylococci to cefalexin is inferred from the methicillin susceptibility. The susceptibility of streptococcus groups A, B, C and G can be inferred from their susceptibility to benzylpenicillin.
Non-species related breakpoints: insufficient data.
Susceptibility

The prevalence of acquired resistance may vary geographically and with time for selected species and local information on resistance is desirable, particularly when treating severe infections. As necessary, expert advice should be sought when the local prevalence of resistance is such that the utility of the agent in at least some types of infections is questionable.

Commonly susceptible species
Aerobes, Gram positive:
Staphylococcus aureus (methicillin – susceptible)
Streptococcus agalactiae
Streptococcus pneumoniae
Streptococcus pyogenes
Aerobes, Gram negative:
Escherichia coli
Moraxella catarrhalis
Anaerobes:
Peptostreptococcus species
Species for which resistance may be a problem
Gram-negative aerobes:
Citrobacter species
Enterobacter species
Morganella morganii
Inherantly Resistant species
Gram-negative aerobes:
Haemophilus influenzae

5.2 Pharmacokinetic properties

Cefalexin is acid stable and may be given without regard to meals. It is rapidly absorbed after oral administration. Following doses of 250 mg, 500 mg, and 1g, average peak serum levels of approximately 9, 18, and 32 mg/l, respectively, were obtained at 1 hour. Measurable levels were present 6 hours after administration. Cefalexin is excreted in the urine by glomerular filtration and tubular secretion. Studies showed that over 90% of the drug was excreted unchanged in the urine within 8 hours. During this period, peak urine concentrations following the 250 mg, 500 mg, and 1 g doses were approximately 1,000, 2,200, and 5,000 mg/l, respectively.

Cefalexin is almost completely absorbed from the gastro-intestinal tract, and 75-100% is rapidly excreted in active form in the urine. Absorption is slightly reduced if the drug is administered with food. The half-life is approximately 60 minutes in patients with normal renal function. Haemodialysis and peritoneal dialysis will remove cefalexin from the blood.

Peak blood levels are achieved one hour after administration, and therapeutic levels are maintained for 6-8 hours. Approximately 80% of the active drug is excreted in the urine within 6 hours. No accumulation is seen with dosages above the therapeutic maximum of 4 g/day.

The half-life may be increased in neonates due to their renal immaturity, but there is no accumulation when given at up to 50 mg/kg/day.

5.3 Preclinical safety data

The daily oral administration of cefalexin to rats in doses of 250 or 500 mg/kg prior to and during pregnancy, or to rats and mice during the period of organogenesis only, had no adverse effect on fertility, foetal viability, foetal weight, or litter size.

Cefalexin showed no enhanced toxicity in weanling and newborn rats as compared with adult animals.

The oral LD_{50} of cefalexin in rats is 5,000 mg/kg.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Cellulose microcrystalline
Croscarmellose sodium
Magnesium stearate

Capsule shell

Gelatin
Sodium laurilsulfate
Patent blue (E131)
Quinoline yellow (E104)
Titanium dioxide (E171)

Printing ink

Shellac
Dehydrated alcohol
Isopropyl alcohol
Butyl alcohol
Propylene glycol
Strong ammonia solution
Black iron oxide (E172)
Potassium hydroxide
Purified water

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

3 years.

6.4 Special precautions for storage

This medicinal product does not require any special temperature conditions.
Store in the original package (for blisters).
Keep the container tightly closed (for bottles).

6.5 Nature and contents of container

1) PVC/PE/PVdC or PVC/ACLAR-Aluminium blisters of 7/14/21/28/56 capsules. The blisters are packed in an outer carton.

HDPE bottle of 100 capsules

6.6 Special precautions for disposal

Any unused product or waste material should be disposed off in accordance with local requirements.

7 MARKETING AUTHORISATION HOLDER

Aurobindo Pharma Limited,
Ares, Odyssey Business Park,
West End Road,
South Ruislip HA4 6QD,
United Kingdom.
Tel: ++44 20 8845 8811.
Fax: ++44 20 8845 8795.

8 MARKETING AUTHORISATION NUMBER(S)

PL 20532/0076

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

22/09/2010

10 DATE OF REVISION OF THE TEXT

22/09/2010

PATIENT INFORMATION LEAFLET

PACKAGE LEAFLET: INFORMATION FOR THE USER

Cefalexin 250 mg capsules
Cefalexin 500 mg capsules
(Cefalexin)

Read all of this leaflet carefully before you start taking this medicine.
- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor or pharmacist.
- This medicine has been prescribed for you. Do not pass it on to others. It may harm them, even if their symptoms are the same as yours.
- If any of the side effects gets serious, or if you notice any side effects not listed in this leaflet, please tell your doctor or pharmacist.

In this leaflet:

1. What Cefalexin is and what it is used for
2. Before you take Cefalexin
3. How to take Cefalexin
4. Possible side effects
5. How to store Cefalexin capsules
6. Further information

1. WHAT CEFALEXIN IS AND WHAT IT IS USED FOR

Cefalexin is an antibiotic. It belongs to a group of antibiotics that is called cephalosporins. These types of antibiotics are fairly similar to penicillin.

Cefalexin works by killing some types of bacteria that can cause various sorts of infection in people. Like all antibiotics, cefalexin is only able to kill some types of bacteria and is so suitable for treating some types of infection only.

Cefalexin is used to treat:
- bacterial infections of the ears (otitis media).
- infections of the lungs and breathing airways.
- infection of the urinary bladder (cystitis).
- kidney and prostate infections.
- bone and joint infections.
- dental infections.
- skin infections such as boils and infected wounds.

2. BEFORE YOU TAKE CEFALEXIN

Do not take Cefalexin
- if you are allergic (hypersensitive) to cefalexin or any of the other ingredients of Cefalexin.
- if you are allergic (hypersensitive) to cephalosporin group of antibiotics.

Take special care with Cefalexin
- if you ever had an allergic reaction to penicillins or any other medicine.
- if you have kidney disorder.
- when cefalexin is administered to you for a long time as infection with micro-organisms (bacteria) insensitive to cefalexin can occur. Your physician will check this carefully and will start an appropriate treatment.

Please tell your doctor or pharmacist if you have or experience any of the above conditions.

Taking other medicines
Please tell your doctor or pharmacist if you are taking or have recently taken any other medicines, including medicines obtained without a prescription.

Tell your doctor if you are taking
- **probenecid** (a medicine that is used in the treatment of gout). Probenecid could increase the amount of cefalexin in your blood, so you may need a lower dose if you also take probenecid.
- **metformin** (medicine used in the treatment of diabetes) as cefalexin could increase the amount of metformin in your blood.
- **aminoglycosides and other cephalosporins** (medicines used in the treatment of infections).
- **furosemide** (medicine used to increase urine output)

Effects on laboratory tests
Tell your doctor if you are taking Cefalexin capsules and you are having **blood or urine tests** as Cefalexin capsules may interfere with the results of these tests.

Taking Cefalexin with food and drink
Cefalexin may be taken on a full or empty stomach.

Pregnancy and breast-feeding
You should tell your doctor if you are pregnant or breast-feeding and he/she will decide if it is ok for you to take Cefalexin capsules. Ask your doctor or pharmacist for advice before taking any medicine.

Driving and using machines
Cefalexin may impair your ability to drive or use machines by making you feel dizzy, agitated or confused.

3. HOW TO TAKE CEFALEXIN

Always take Cefalexin exactly as your doctor has told you. You should check with your doctor or pharmacist if you are not sure.

Adults
The adult dosage ranges from 1-4 g per day in divided doses with most infections responding to a dosage of 500 mg three times a day.

For some infections such as those of the skin and underlying tissues, sore throat and cystitis the usual dose is either 250 mg 4 times a day or 500 mg twice a day.

Children

The usual recommended dose is calculated by weight, and is usually 25-50 mg per kg body weight.

For infections of the skin and underlying tissues, sore throat and cystitis the total daily dose may be divided in two and administered twice a day.

For most infections the following schedule is suggested:

Children under 5 years:
125 mg three time a day. Cefalexin 250 mg capsules are not suitable for this regimen since they cannot be broken in half.

Children 5 years and over:
250 mg three times a day.

Cefalexin 500 mg capsules are not suitable for these dose regimens.

In severe infections, the dose may be doubled.

In infections of the ear (otitis), a dose of 75-100 mg per kg of body weight may be given divided in 4 doses administered four times a day.

Patients with impaired renal function
A reduced dose is needed for patients with severe kidney disorders.

Elderly patients
The usual doses are same as those of adults. However, for patients with impaired kidney function, lower doses may be required.

If you take more Cefalexin than you should
If you have taken more capsules than you should have or if someone else has swallowed some of your capsules, contact your doctor, pharmacist or hospital emergency department immediately. Symptoms of overdose may include nausea, vomiting, abdominal pain, diarrhoea and blood in the urine.

If you forget to take Cefalexin
If you forget to take a dose, take it as soon as you remember. However, if you are due to take another dose soon, leave out the forgotten dose altogether and continue your treatment as before.
Do not take a double dose to make up for a forgotten dose.

If you have any further questions on the use of this product, ask your doctor or pharmacist.

4. POSSIBLE SIDE EFFECTS

Like all medicines, Cefalexin capsules can cause side effects, although not everybody gets them.

If any of the following **serious side effects happen,** stop taking this medicine and **tell your doctor immediately or go to your nearest hospital accident and emergency department.**

Rare side effects (affect 1 to 10 users 10,000):

- **swelling of your face, lips, tongue or throat** (angioedema)
- **a sudden** allergic reaction with **shortness of breath, rash, wheezing and drop of blood pressure - itchy spots or rash** on the arms and legs or **severe, extensive, blistering skin rash** (erythema multiforme, Steven-Johnson syndrome)
- fever, sore throat, and joint pain with a **severe blistering, peeling, and red skin rash** (toxic epidermal necrolysis)
- **diarrhoea** that is watery or bloody

The following side effects have been reported:

Common side effects (affect 1-10 users in 100):

- Nausea and diarrhoea.

Uncommon side effects (affect 1-10 users of 1,000):

- Changes in blood tests that check how your liver is working
- Increase in some types of white blood cells.

Rare side effects (affect 1-10 users in 10,000):

- Blood problems: drop in the numbers of different cells in the blood (symptoms can include new infections and easy bruising or bleeding), increase in the numbers of small cells that are needed for clotting of the blood; haemolytic anaemia, a type of anaemia that can be severe and is caused by red blood cells breaking up
- Headaches, dizziness
- Abdominal pain, vomiting, indigestion, inflammation of the intestines causing severe and painful diarrhoea (pseudomembranous colitis)
- Kidney inflammation
- Genital and anal problems: itching and inflammation of the vagina (vaginitis)
- Tiredness
- Inflammation of the liver and yellow skin and eyes (jaundice)

Other side effects (affecting an unknown number of users):

- Pain or inflammation of joints
- Infections caused by other germs. For example, thrush may occur
- Fever
- Hallucinations, agitation, confusion.

If you are having a blood test for any reason, tell the person who is taking your blood sample that you are taking this medicine as it may affect your result.

If any of the side effects gets serious, or if you notice any side effects not listed in this leaflet, please tell your doctor or pharmacist.

5. HOW TO STORE CEFALEXIN CAPSULES

Keep out of the reach and sight of children.

Do not use Cefalexin after the expiry date which is stated on the label/carton after "EXP". The expiry date refers to the last day of that month.

This medicinal product does not require any special temperature conditions.
Store in the original package (for blisters).
Keep the container tightly closed to protect from moisture (for bottle).
Do not use Cefalexin capsules if you notice visible signs of deterioration.

Medicines should not be disposed off via wastewater or household waste. Ask your pharmacist how to dispose off medicines no longer required. These measures will help to protect the environment.

6. FURTHER INFORMATION

What Cefalexin capsule contains

- The active substance is Cefalexin.
  Cefalexin 250 mg capsules
  Each hard gelatin capsule contains 250 mg cefalexin (as cefalexin monohydrate Ph. Eur.).
  Cefalexin 500 mg capsules
  Each hard gelatin capsule contains 500 mg cefalexin (as cefalexin monohydrate Ph. Eur.).
- The other ingredients are cellulose microcrystalline, croscarmellose sodium and magnesium stearate.
  Capsule shell: Gelatin, sodium laurilsulfate, patent blue (E131), quinoline yellow (E104) and titanium dioxide (E171).
  Printing ink: Shellac, dehydrated alcohol, isopropyl alcohol, butyl alcohol, propylene glycol, strong ammonia solution, black iron oxide (E172), potassium hydroxide and purified water.

What Cefalexin capsules looks like and contents of the pack

Capsules, hard

Cefalexin 250 mg and 500 mg capsules are blue and white in colour. Cefalexin 250 mg capsules are imprinted with 'A 75' and '250 mg'. Cefalexin 500 mg capsules are imprinted with 'A 76' and '500 mg'.

Cefalexin 250 mg capsules are available in packs of 14, 28, 56 and 84 capsules.

Cefalexin 500 mg capsules are available in packs of 7, 14, 21, 28 and 56 capsules.

Both strengths of the capsules are also available in HDPE bottles of 100 capsules.

Not all pack sizes may be marketed.

Marketing Authorisation Holder
Aurobindo Pharma Limited
Ares, Odyssey Business Park
West End Road
South Ruislip HA4 6QD
United Kingdom
Tel: ++44 20 8845 8811.
Fax: ++44 20 8845 8795.

Manufacturer
APL Swift Services (Malta) Limited
HF26, Hal Far Industrial Estate
Hal Far, Birzebbugia, BBG 3000
Malta

This leaflet was last approved in 08/2010.

LABELLING


cefALEXin 250 mg capsules
28 capsules
AUROBINDO
Code: 78/MD/AP/96/F/B/R
EXP
Lot
Each hard capsule contains cefalexin monohydrate equivalent to 250 mg cefalexin.
Oral use.
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
Store in the original package.
P100xxx
cefALEXin 250 mg capsules
28 capsules
Affix dispensing label here
cefALEXin 250 mg capsules
28 capsules
POM
PL 20532/0075
Product Licence Holder:
Aurobindo Pharma Limited
Ares, Odyssey Business Park
West End Road
South Ruislip HA4 6QD
United Kingdom
Tel: ++44 20 8845 8811.
Fax: ++44 20 8845 8795.


EXP :
Lot :
Code: 78/MD/AP/96/F/B/R
P100xxxx
CefALEXin 250 mg capsules
100 capsules
AUROBINDO
Each hard capsule contains cefalexin monohydrate equivalent to 250 mg cefalexin.
Oral use.
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
Keep the container tightly closed to protect from moisture.
POM
PL 20532/0075
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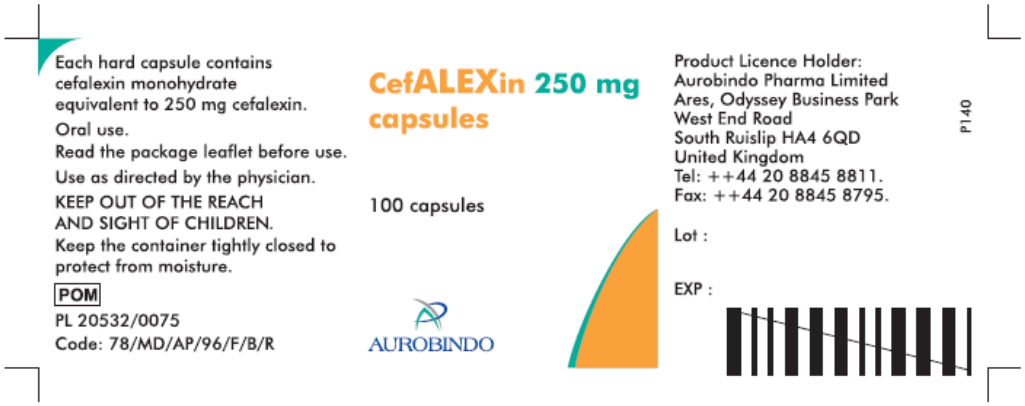
South Ruislip HA4 6QD
United Kingdom
Tel: ++44 20 8845 8811.
Fax: ++44 20 8845 8795.
CefALEXin 250 mg capsules
100 capsules
AUROBINDO
Affix dispensing label here
CefALEXin 250 mg capsules
100 capsules


Each hard capsule contains cefalexin monohydrate equivalent to 250 mg cefalexin.
Oral use.
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
Keep the container tightly closed to protect from moisture.
POM
PL 20532/0075
Code: 78/MD/AP/96/F/B/R
CefALEXin 250 mg capsules
100 capsules
AUROBINDO
Product Licence Holder:
Aurobindo Pharma Limited
Ares, Odyssey Business Park
West End Road
South Ruislip HA4 6QD
United Kingdom
Tel: ++44 20 8845 8811.
Fax: ++44 20 8845 8795.
P140
Lot :
EXP :

cefALEXin 250 mg capsules
Aurobindo Pharma Limited
cefALEXin 250 mg capsules
Aurobindo Pharma Limited
cefALEXin 250 mg capsules
Aurobindo Pharma Limited
cefALEXin 250 mg capsules
Aurobindo Pharma Limited
*
*


cefALEXin 500 mg capsules
21 capsules
AUROBINDO
Code: 78/MD/AF/96/F/B/R
EXP
Lot
Each hard capsule contains cefalexin monohydrate equivalent to 500 mg cefalexin.
Oral use
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
Store in the original package.
P100xxxx
cefALEXin 500 mg capsules
21 capsules
Affix dispensing label here
cefALEXin 500 mg capsules
21 capsules
POM
PL 20532/0076
Product Licence Holder:
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Ares, Odyssey Business Park
West End Road
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United Kingdom
Tel: ++44 20 8845 8811.
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cefALEXin 500 mg capsules
28 capsules
AUROBINDO
Code: 78/MD/AP/96/F/B/R
EXP
Lot
Each hard capsule contains cefalexin monohydrate equivalent to 500 mg cefalexin.
Oral use
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
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P100xxxx
cefALEXin 500 mg capsules
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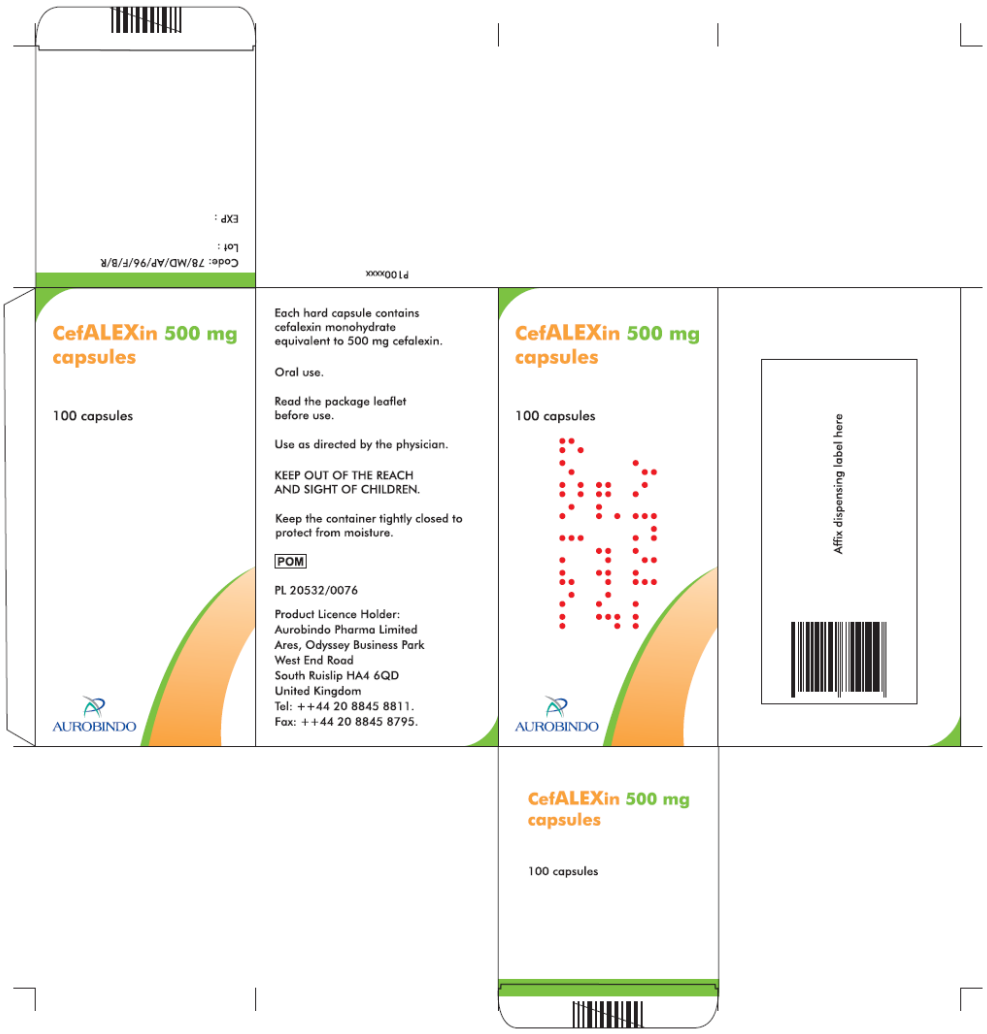
Code: 78/MD/AP/96/F/B/R
Lot :
EXP :
P100xxxx
CefALEXin 500 mg capsules
100 capsules
Each hard capsule contains cefalexin monohydrate equivalent to 500 mg cefalexin.
Oral use.
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
Keep the container tightly closed to protect from moisture.
POM
PL 20532/0076
Product Licence Holder:
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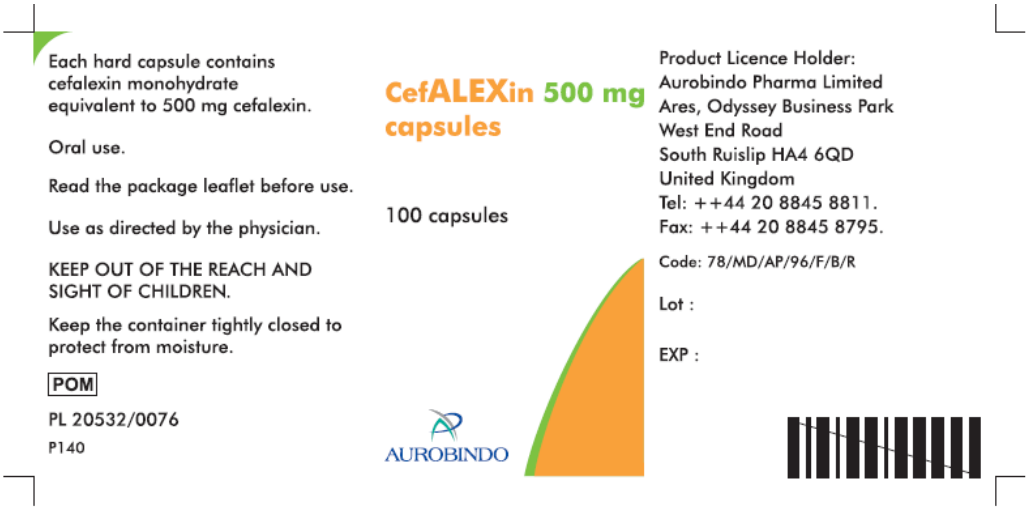
United Kingdom
Tel: ++44 20 8845 8811.
Fax: ++44 20 8845 8795.
AUROBINDO
CefALEXin 500 mg capsules
100 capsules
AUROBINDO
Affix dispensing label here
CefALEXin 500 mg capsules
100 capsules


Each hard capsule contains cefalexin monohydrate equivalent to 500 mg cefalexin.
Oral use.
Read the package leaflet before use.
Use as directed by the physician.
KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.
Keep the container tightly closed to protect from moisture.
POM
PL 20532/0076
P140
CefALEXin 500 mg capsules
100 capsules
AUROBINDO
Product Licence Holder:
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Aurobindo Pharma Limited
cefALEXin 500 mg capsules
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