Cefoxitin

**CAS Number**: 35607-66-0  
**Molecular Weight**: 427.452 g/mol  
**Molecular Formula**: C_{16}H_{17}N_{3}O_{7}S_{2}  
**Systematic (IUPAC)**: (6R,7S)-3-[(carbamoyloxy)methyl]-7-methoxy-8-oxo-7-[2-(thiophen-2-yl)acetamido]-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid  
**Type**: small molecule  
**Description**: Cefoxitin is a semi-synthetic, broad-spectrum cepha antibiotic for intravenous
administration. It is derived from cephamycin C, which is produced by Streptomyces lactamdurans.

**Categories**
Antibacterial Agents
Antibacterial Agents
Cephalosporins

**Taxonomy**

**Kingdom**: Organic

**Classes**
Carbamates and Derivatives
Carboxylic Acids and Derivatives
Polypeptides
Cephalosporins

**Substructures**
Hydroxy Compounds
Acetates
Carbamates and Derivatives
Amino Ketones
Carboxylic Acids and Derivatives
Ethers
Aliphatic and Aryl Amines
Aminals and Derivatives
Beta Lactams
Enamines
Polypeptides
Heterocyclic compounds
Aromatic compounds
Carboxamides and Derivatives
Cephalosporins
Amino Acids
Lactams
Azetidines
Thiophenes

**Pharmacology**

**Indication**: For the treatment of serious infections caused by susceptible strains microorganisms.

**Pharmacodynamics**: Cefoxitin is a cephemycin antibiotic often grouped with the second-generation cephalosporins. It is active against a broad range of gram-negative bacteria including anaerobes. The methoxy group in the 7a position provides cefoxitin with a high degree of stability in the presence of beta-lactamases, both penicillinases and cephalosporinases, of gram-negative bacteria.

**Mechanism of action**: The bactericidal action of cefoxitin results from inhibition of cell wall synthesis.

**Metabolism**: Minimal (approximately 85 percent of cefoxitin is excreted unchanged by the kidneys over a 6-hour period).

**Route of elimination**: Approximately 85 percent of cefoxitin is excreted unchanged by the kidneys over a 6-hour period, resulting in high urinary concentrations. Cefoxitin passes into pleural and joint fluids and is detectable in antibacterial concentrations in bile.

**Half life**: The half-life after an intravenous dose is 41 to 59 minutes.

**Toxicity**: The acute intravenous LD50 in the adult female mouse and rabbit was about 8.0 g/kg and greater than 1.0 g/kg, respectively. The acute intraperitoneal LD50 in the adult rat was greater than 10.0 g/kg.

**Affected organisms**: Enteric bacteria and other eubacteria

**Cefoxitin Description**
Cefoxitin for Injection, USP contains Cefoxitin sodium a semi-synthetic, broad-spectrum cephalosporin antibiotic for parenteral administration. It is derived from cephalosporin C, which is produced by Cephalosporium Acremonium. Its chemical name is sodium (6R,7S)-3-(hydroxymethyl)-7-methoxy-8-oxo-7-[2-(2-thienyl)acetamido]-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylate carbamate (ester). The molecular formula is C_{16}H_{16}N_{3}NaO_{7}S_{2}.

Cefoxitin for Injection, USP is supplied as a dry powder in vials and contains approximately 53.8 mg (2.3 milliequivalents) of sodium per gram of Cefoxitin activity. Solutions of Cefoxitin for Injection, USP range from colorless to light amber in color. The pH of freshly constituted solutions usually ranges from 4.2 to 7. Each pharmacy bulk package bottle contains sterile Cefoxitin sodium, USP equivalent to 10 g of Cefoxitin and is intended for intravenous infusion only. A pharmacy bulk package is a container of a sterile preparation for parenteral use that contains many single doses. The contents are intended for use in a pharmacy admixture service and are restricted to the preparation of admixtures for intravenous infusion. FURTHER DILUTION IS REQUIRED BEFORE USE. RECONSTITUTED BULK SOLUTION SHOULD NOT BE USED FOR DIRECT INFUSION. RECONSTITUTED STOCK SOLUTION MUST BE TRANSFERRED AND FURTHER DILUTED FOR I.V. INFUSION.

**Cefoxitin - Clinical Pharmacology**

**Clinical Pharmacology**

Following an intravenous dose of 1 gram, serum concentrations were 110 mcg/mL at 5 minutes, declining to less than 1 mcg/mL at 4 hours. The half-life after an
intravenous dose is 41 to 59 minutes. Approximately 85 percent of Cefoxitin is excreted unchanged by the kidneys over a 6-hour period, resulting in high urinary concentrations. Probenecid slows tubular excretion and produces higher serum levels and increases the duration of measurable serum concentrations.

Cefoxitin passes into pleural and joint fluids and is detectable in antibacterial concentrations in bile. In a published study of geriatric patients ranging in age from 64 to 88 years with normal renal function for their age (creatinine clearance ranging from 31.5 to 174 mL/min), the half-life for Cefoxitin ranged from 51 to 90 minutes, resulting in higher plasma concentrations than in younger adults. These changes were attributed to decreased renal function associated with the aging process.

**Microbiology**

The bactericidal action of Cefoxitin results from inhibition of cell wall synthesis. Cefoxitin has in vitro activity against a wide range of gram-positive and gram-negative organisms. The methoxy group in the 7α position provides Cefoxitin with a high degree of stability in the presence of beta-lactamases, both penicillinases and cephalosporinases, of gram-negative bacteria.

**What is Cefoxitin?**

Cefoxitin is in a group of drugs called cephalosporin (SEF a low spor in) antibiotics. It works by fighting bacteria in your body.

Cefoxitin is used to treat many kinds of bacterial infections, including severe or life-threatening forms. Cefoxitin may also be used for purposes other than those listed in this medication guide.
Precautions
Before administering cefoxitin,
tell your doctor and pharmacist if you are allergic to
cefoxitin, any other cephalosporin [e.g., cefaclor
(Ceclor), cefadroxil (Duricef), or cephalexin (Keflex)],
penicillins, or any other drugs.
tell your doctor and pharmacist what prescription and
nonprescription medications you are taking, especially
other antibiotics, probenecid (Benemid), and vitamins.
tell your doctor if you have or have ever had kidney,
liver, or gastrointestinal disease (especially colitis).
tell your doctor if you are pregnant, plan to become
pregnant, or are breast-feeding. If you become pregnant
while taking cefoxitin, call your doctor.
if you have diabetes and regularly check your urine for
sugar, use Clinistix or TesTape. Do not use Clinitest
tablets because cefoxitin may cause false positive results.

Administering your medication
Before you administer cefoxitin, look at the solution
closely. It should be clear and free of floating material.
Gently squeeze the bag or observe the solution container
to make sure there are no leaks. Do not use the solution
if it is discolored, if it contains particles, or if the bag or
container leaks. Use a new solution, but show the
damaged one to your health care provider.
It is important that you use your medication exactly as
directed. Do not stop your therapy on your own for any
reason because your infection could worsen and result in
hospitalization. Do not change your dosing schedule
without talking to your health care provider. Your health
care provider may tell you to stop your infusion if you
have a mechanical problem (such as a blockage in the
tubing, needle, or catheter); if you have to stop an
infusion, call your health care provider immediately so your therapy can continue.

**Side effects**
Cefoxitin may cause side effects. If you are administering cefoxitin into a muscle, it probably will be mixed with lidocaine (Xylocaine) to reduce pain at the injection site. Tell your health care provider if any of these symptoms are severe or do not go away:
- diarrhea
- stomach pain
- upset stomach
- vomiting

If you experience any of the following symptoms, call your health care provider immediately:
- unusual bleeding or bruising
- difficulty breathing
- skin rash
- itching
- hives
- sore mouth or throat

**Storing your medication**
Your health care provider probably will give you a several-day supply of cefoxitin at a time. If you are receiving cefoxitin intravenously (in your vein), you probably will be told to store it in the refrigerator or freezer.

Take your next dose from the refrigerator 1 hour before using it; place it in a clean, dry area to allow it to warm to room temperature.

If you are told to store additional cefoxitin in the freezer, always move a 24-hour supply to the refrigerator for the next day’s use.
Do not refreeze medications.
If you are receiving cefoxitin intramuscularly (in your muscle), your health care provider will tell you how to store it properly.

Store your medication only as directed. Make sure you understand what you need to store your medication properly.

Keep your supplies in a clean, dry place when you are not using them, and keep all medications and supplies out of reach of children. Your health care provider will tell you how to throw away used needles, syringes, tubing, and containers to avoid accidental injury.

**Signs of Infections**

If you are receiving cefoxitin in your vein or under your skin, you need to know the symptoms of a catheter-related infection (an infection where the needle enters your vein or skin). If you experience any of these effects near your intravenous catheter, tell your health care provider as soon as possible:

- tenderness
- warmth
- irritation
- drainage
- redness
- swelling
- pain

**What is the most important information I should know about Cefoxitin?**

Do not use this medication if you are allergic to cefoxitin, or to similar antibiotics, such as Ceftin, Cefzil, Keflex, Omnicef, and others.

Before using this medication, tell your doctor if you are allergic to any drugs (especially penicillin). Also tell your doctor if you have liver or kidney disease, diabetes, heart...
failure, cancer, a stomach or intestinal disorder, or if you are malnourished.

Take this medication for the entire length of time prescribed by your doctor. Your symptoms may get better before the infection is completely treated. Cefoxitin will not treat a viral infection such as the common cold or flu.

Antibiotic medicines can cause diarrhea, which may be a sign of a new infection. If you have diarrhea that is watery or has blood in it, call your doctor. Do not use any medicine to stop the diarrhea unless your doctor has told you to.

This medication can cause you to have unusual results with certain lab tests, including tests to check for glucose (sugar) in the urine. Tell any doctor who treats you that you are using cefoxitin.

What should I discuss with my healthcare provider before taking Cefoxitin?

Do not use this medication if you are allergic to cefoxitin, or to other cephalosporin antibiotics, such as:

- cefaclor (Raniclor)
- cefadroxil (Duricef)
- cefazolin (Ancef)
- cefdinir (Omnicef)
- cefditoren (Spectracef)
- cefpodoxime (Vantin)
- cefprozil (Cefzil)
- ceftibuten (Cedax)
- cefuroxime (Ceftin)
- cephalixin (Keflex)
- cephradine (Velosef); and others
If you have any of these other conditions, you may need a dose adjustment or special tests to safely take cefoxitin:
- kidney disease
- liver disease
- a stomach or intestinal disorder such as colitis
- diabetes
- congestive heart failure
- cancer
- if you are malnourished; or
- if you have had a very recent surgery or medical emergency
Email:
apollo@Hotmail.Co.in
Sales@apollopharma.in
Export@apollopharma.in
purchase@apollopharma.in

www.apolloworld.in
www.apollopharma.in
www.apollopharmaceuticals.Net

Chat:
MSN Hotmail:VipinrSaxena
Skype NAME:VipinrSaxena
Rocketmail:VipinrSaxena
Google mail:VipinrSaxena
BlackBerry:28415C58

Regd. Office :-
1104, Maker Chamber V,
Nariman Point
Mumbai, INDIA
Pin:400021

Industrial Office
D-62, OIC India
Oshiwara Industrial Centre,
New Link Road,
Goregoan West,
Mumbai, INDIA
Pin:400104

Manufacturing Unit Address:
Plot No. 117A,
Village: Chamble
Near MonaTona Limited.Wada,
Maharashtra,
PIN : 421312 | INDIA
Cefoxitin

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Systematic (IUPAC): (6R,7S)-3-[(carbamoyl)methyl]-7-methoxy-8-oxo-7-[2-(thiophen-2-yl)acetamido]-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid