

# CEFTRIAXONE

Ceftriaxone as the disodium salt.

## Presentation

0.5g, 1g, injections; 2g infusion.

Vials are colourless and contain a free flowing, dry, slightly yellowish powder equivalent to 0.5g, 1g or 2g ceftriaxone.

## Uses

### Actions

Ceftriaxone is a long acting, broad-spectrum cephalosporin antibiotic for parenteral use. The bactericidal activity of ceftriaxone results from inhibition of cell wall synthesis. Ceftriaxone exerts in vitro activity against a wide range of Gram-negative and Gram-positive microorganisms. Ceftriaxone is highly stable to most beta-lactamases, both penicillinases and cephalosporinases, of Gram-positive and Gram-negative bacteria. Ceftriaxone is usually active against the following microorganisms in vitro and in clinical infections (see Indications):

Gram-positive aerobes:

*Staphylococcus aureus* (methicillin-sensitive)

*Staphylococci* coagulase-negative

*Streptococcus pyogenes* ( $\beta$ -hemolytic, group A)

*Streptococcus agalactiae* ( $\beta$ -hemolytic, group B)

*Streptococci*  $\beta$ -hemolytic (non-group A or B)

*Streptococcus viridans*

*Streptococcus pneumoniae*

NOTE:

Methicillin-resistant *Staphylococcus* spp. Are resistant to cephalosporins, including ceftriaxone. In general, *Enterococcus faecalis*, *Enterococcus faecium* and *Listeria monocytogenes* are resistant.

Gram-negative aerobes:

*Acinetobacter lwoffii*

*Acinetobacter anitratus* (mostly *A. baumannii*)\*

*Aeromonas hydrophila*

*Alcaligenes faecalis*

*Alcaligenes odorans*

*Alcaligenes*-like bacteria

*Capnocytophaga* spp.

*Citrobacter diversus* (including *C. amalonaticus*)

*Citrobacter freundii*\*

*Escherichia coli*

*Enterobacter aerogenes*\*

*Enterobacter cloacae*\*

*Enterobacter* spp. (other)

*Haemophilus ducreyi*

*Haemophilus influenzae*

*Haemophilus parainfluenzae*

*Hafnia alvei*

*Klebsiella oxytoca*  
*Klebsiella pneumoniae*\*\*  
*Moraxella catarrhalis* (former *Branhamella catarrhalis*)  
*Moraxella osloensis*  
*Moraxella* spp. (other)  
*Morganella morganii*  
*Neisseria gonorrhoeae*  
*Neisseria meningitidis*  
*Pasteurella multocida*  
*Plesiomonas shigelloides*  
*Proteus penneri*\*  
*Proteus mirabilis*  
*Proteus vulgaris*  
*Pseudomonas cepacia*  
*Pseudomonas fluorescens*\*  
*Pseudomonas* spp. (other)\*  
*Providentia rettgeri*  
*Providentia* spp. (other)  
*Salmonella typhi*  
*Salmonella* spp. (non-typhoid)  
*Serratia marcescens*  
*Serratia* spp. (other)  
*Shigella* spp.  
*Vibrio* spp.  
*Yersinia enterocolitica*  
*Yersinia* spp. (other)

\*Some isolates of these species are resistant to ceftriaxone, mainly due to the production of the chromosomally encoded  $\beta$ -lactamase.

\*\*Some isolates of these species are resistant due to production of extended spectrum plasmid mediated  $\beta$ -lactamase.

#### NOTE:

Many strains of the above microorganisms that are multiply resistant to other antibiotics, e.g. amino – and ureido-penicillins, older cephalosporins and aminoglycosides, are susceptible to ceftriaxone. *Treponema pallidum* is sensitive *in vitro* and in animal experiments. Clinical investigations indicate that primary and secondary syphilis respond well to ceftriaxone therapy. *Borrelia burgdorferi* can also be classified as highly sensitive to ceftriaxone, according to the available *in vitro* and *in vivo* data.

With a few exceptions clinical *P. aeruginosa* isolates are resistant to ceftriaxone.

#### Anaerobic organisms:

*Bacteroides* spp. (bile-sensitive)\*  
*Clostridium* spp. (excluding the *C. perfringens* group)  
*Fusobacterium nucleatum*  
*Fusobacterium* spp. (other)  
*Gaffkia anaerobica* (former *peptococcus*)  
*Peptostreptococcus* spp.

\*Some isolates of these species are resistant to ceftriaxone due to  $\beta$ -lactamase-production.

#### NOTE:

Many strains of  $\beta$ -lactamase-producing *Bacteroides* spp. (notably *B. fragilis*) are resistant. *Clostridium difficile* is resistant.

Susceptibility to ceftriaxone can be determined by the disk diffusion test or by the agar or broth dilution test using standardised techniques for susceptibility testing such as those

recommended by the National Committee for Clinical Laboratory Standards (NCCLS). The NCCLS issued interpretative breakpoints for ceftriaxone. Refer to Table 1.

Table 1

	Susceptible	Moderately Susceptible	Resistant
Dilution test Inhibitory concentrations in mg/L	$\leq 8$	16-32	$\geq 64$
Diffusion test (disk with 30 $\mu$ ceftriaxone), inhibition zone diameter in mm	$\geq 21$	20-14	$\leq 13$

Microorganisms should be tested with the ceftriaxone disk since it has been shown by *in vitro* tests to be active against certain strains resistant to cephalosporin class disks.

Where NCCLS recommendations are not in daily use, alternative, well standardised, susceptibility interpretative guidelines such as those issued by DIN, ICS and others may be substituted.

### **Pharmacokinetics**

Pharmacodynamic properties. Ceftriaxone is a long acting, broad-spectrum cephalosporin antibiotic for parenteral use. Ceftriaxone inhibits the bacterial cell wall synthesis leading to lysis of bacteria.

#### **Pharmacokinetic properties:**

The pharmacokinetics of ceftriaxone are nonlinear and all basic pharmacokinetic parameters, except the elimination half-life, are dose dependent if based on total drug concentrations. An overall mean and the range of means from studies have been presented for the primary pharmacokinetic parameters of ceftriaxone administered in the dose range 0.15-3g.

#### **Absorption:**

The maximum plasma concentration after a single IM dose of 1.0g is about 81 mg/l and is reached in 2-3 hours after the dose. The area under the plasma concentration-time curve after IM administration is equivalent to that after IV administration of an equivalent dose, indicating 100% bioavailability of intramuscularly administered ceftriaxone.

#### **Distribution:**

The volume of distribution of ceftriaxone is 7-12L. Ceftriaxone has shown excellent tissue and body fluid penetration after a dose of 1-2g; concentrations well above the minimal inhibitory concentrations of most pathogens responsible for infection are detectable for more than 24 hours in over 60 tissues or body fluids including lung, heart, biliary tract/liver, tonsil, middle ear and nasal mucosa, bone; and cerebrospinal, pleural, prostatic and synovial fluids.

On intravenous administration, ceftriaxone diffuses rapidly into the interstitial fluid, where bactericidal concentrations against susceptible organisms are maintained for 24 hours.

#### **Protein Binding:**

Ceftriaxone is reversibly bound to albumin, and the binding decreases with the increase in the concentration, e.g. from 95% binding at plasma concentrations of <100mg/l to 85% binding at 300mg/l. Owing to the lower albumin content, the proportion of free ceftriaxone in interstitial fluid is correspondingly higher than in plasma.

**Metabolism:**

Ceftriaxone is not metabolized systemically; only the intestinal flora transforms the agent into inactive metabolites.

**Penetration into particular tissues:**

Ceftriaxone penetrates the inflamed meninges of neonates, infants and children. Ceftriaxone concentrations are  $>1.4\text{mg/l}$  in the CSF 24 hours after IV injection of Ceftriaxone in doses of 50-100mg per kg (neonates and infants, respectively). Peak concentration in CSF is reached about 4 hours after IV injection and gives an average value of 18mg/l. The average extent of diffusion into the cerebrospinal fluid during bacterial meningitis is 17% of the plasma concentration and 4% in patients with aseptic meningitis. In adult meningitis patients, administration of 50mg per kg leads within 2-24 hours to CSF concentrations several times higher than the minimum inhibitory concentrations required for the most common causative organisms of meningitis.

Ceftriaxone crosses the placental barrier and is secreted in the breast milk at low concentrations.

**Elimination:**

The total plasma clearance is 10-22 ml/min.

The renal clearance is 5-12ml/min.

50-60% of ceftriaxone is excreted unchanged in the urine, while 40-50% is excreted unchanged in the bile. The elimination half-life in adults is about eight hours. Pharmacokinetics in special clinical situations:

In neonates, urinary recovery accounts for about 70% of the dose. In infants aged less than eight days and in elderly persons aged over 75 years, the average elimination half life is usually 2 to 3 times that in the young adult group. In patients with renal or hepatic dysfunction, the pharmacokinetics of ceftriaxone are only minimally altered and the elimination half-life is only slightly increased. If kidney function alone is impaired, biliary elimination of ceftriaxone is increased; if liver function alone is impaired, renal elimination is increased.

**Preclinical safety data:**

Repeated dose administrations in animals revealed the known and reversible side effect of parenterally administered 3<sup>rd</sup>-generation cephalosporins at high doses (e.g. alteration of laboratory parameters, enteric disturbances and a certain degree of nephrotoxicity). A specific side effect of ceftriaxone is the formation of biliary calculi in the gallbladder of dogs, and to a minor extent, also in monkeys. Ceftriaxone had no effect on reproductive parameters, and was found to have neither mutagenic nor antigenic activity.

**Indications**

Infections caused by pathogens sensitive to Ceftriaxone e.g.:

- sepsis;
- meningitis;
- abdominal infections (peritonitis, infections of the biliary and gastrointestinal tracts);
- infections of the bones, joints, soft tissue, skin and of wounds;
- infections in patients with impaired defence mechanisms;
- renal and urinary tract infections;
- respiratory tract infections, particularly pneumonia, and ear, nose and throat infections;
- genital infections, including gonorrhoea.
- Perioperative prophylaxis of infections.

## **Dosage and administration**

### ***Adults and Children over twelve years:***

The usual dosage is 1-2g of ceftriaxone administered once daily (every 24 hours). In severe cases or in infections caused by moderately sensitive organisms, the dosage may be raised to 4g, administered once daily.

### ***Elderly patients:***

The dosages recommended for adults require no modification in the case of geriatric patients.

### ***Neonates, Infants and Children up to twelve years:***

The following dosage schedules are recommended for once daily administration:

#### ***Neonates (up to 14 days):***

A daily dose of 20-50mg/kg bodyweight, not to exceed 50mg/kg, on account of the immaturity of the infant's enzyme systems. It is not necessary to differentiate between premature and infants born at term.

Infants and children (15 days to twelve years):

A daily dose of 20-80 mg/kg.

#### **NOTE:**

For children with bodyweights of 50kg or more, the usual adult dosage should be used.

Intravenous doses of 50mg or more per kg should be give by infusion over at least 30 minutes.

### ***Duration of therapy:***

The duration of therapy varies according to the course of the disease. As with antibiotic therapy in general, administration of ceftriaxone should be continued for a minimum of 48 to 72 hours after the patient has become afebrile or evidence of bacterial eradication has been obtained.

### ***Combination therapy:***

Synergy between ceftriaxone and aminoglycosides has been demonstrated with many Gram-negative bacilli under experimental conditions. Although enhanced activity of such combinations is not always predictable, it should be considered in severe, life-threatening infections due to microorganisms such as *Pseudomonas aeruginosa*. Because of physical incompatibility the two medicines must be administered separately at the recommended dosages.

### ***Special dosage instructions:***

In patients of any age ceftriaxone must not be missed or administered simultaneously with any calcium-containing IV solutions, even via different infusion lines or at different sites.

However, in patients older than 28 days of age ceftriaxone and calcium-containing solutions may be administered sequentially one after another if infusion lines at different sites are used or if the infusion lines are replaced or thoroughly flushed between infusions with physiological salt-solution to avoid precipitation. In patients requiring continuous infusion with calcium-containing TPN solutions, healthcare professionals may wish to consider the use of alternative antibacterial treatments which do not carry a similar risk of precipitation. If use of

ceftriaxone is considered necessary in patients requiring continuous nutrition, TPN solution and ceftriaxone can be administered simultaneously, albeit via different infusion lines at different site. Alternatively, infusion of TPN solution could be stopped for the period of ceftriaxone infusion, considering the advice to flush lines between solutions.

**Meningitis:**

In bacterial meningitis in infants and children, treatment begins with doses of 100mg/kg (not to exceed 4g) once daily. As soon as the causative organism has been identified and its sensitivity determined, the dosage can be reduced accordingly. The best results have been found with the following duration of therapy:

Neisseria meningitidis	4 days
Haemophilus influenzae	6 days
Streptococcus pneumoniae	7 days

**Gonorrhoea:**

For the treatment of gonorrhoea (penicillinase-producing and nonpenicillinase-producing strains), a single IM dose of 250mg ceftriaxone is recommended.

**Perioperative prophylaxis:**

To prevent postoperative infections in contaminated or potentially contaminated surgery, the recommended approach – depending on the risk of infection – is a single dose of 1-2g ceftriaxone administered 30-90 minutes prior to surgery. In colorectal surgery, concurrent (but separate) administration of ceftriaxone with or without a 5-nitroimidazole, e.g. ornidazole, has proven effective.

**Impaired renal and hepatic function:**

In patients with impaired renal function, there is no need to reduce the dosage of ceftriaxone provided hepatic function is intact. Only in cases of preterminal renal failure (creatinine clearance <10 ml/min) should the ceftriaxone dosage not exceed 2g daily. In patients with liver damage, there is no need for the dosage to be reduced provided renal function is intact. In cases of concomitant severe renal and hepatic dysfunction, the plasma concentrations of ceftriaxone should be determined at regular intervals.

In patients undergoing dialysis no additional supplementary dosing is required following the dialysis.

Serum concentrations should be monitored, however, to determine whether dosage adjustments are necessary, since the elimination rate in these patients may be reduced.

**Directions for use:**

Reconstituted solutions retain their physical and chemical stability for six hours at room temperature (or 24 hours at 2-8oC).

As a general rule, however the solution should be used immediately after preparation. They range in colour from pale yellow to amber, depending on the concentration and the length of storage. This characteristic of the active ingredient is of no significance for the efficacy or tolerance of the drug.

**Intramuscular injection:**

For IM injection, ceftriaxone 1g in 3.5ml of 1% lidocaine hydrochloride solution and injected well within the body of a relatively large muscle. It is recommended that not more than 1g to be injected at one site.

The lidocaine solution must never be administered intravenously.

**Intravenous injection:**

For IV injection, ceftriaxone 0.5g is dissolved in 5ml, and ceftriaxone 1g in 10ml, of sterile water for injections. The intravenous administration should be given over two to four minutes.

**Intravenous infusion:**

The infusion should last at least 30 minutes.

For IV infusion, 2g ceftriaxone are dissolved in 40ml of one of the following calcium-free infusion solutions: sodium chloride 0.9%, sodium chloride 0.45% + dextrose 2.5%, dextrose 5%, dextrose 10%, dextran 6% in dextrose 5%, hydroxyethyl starch 6-10% infusions, sterile water for injections. Ceftriaxone solutions should not be mixed with or piggybacked into solutions containing other antimicrobial drugs or into diluent solutions other than those listed above, owing to possible incompatibility.

**Contraindications**

Ceftriaxone is contraindicated in patients with known hypersensitivity to ceftriaxone or the excipients or to the cephalosporin class of antibiotics. In patients hypersensitive to penicillin, the possibility of allergic cross-reactions should be borne in mind. Although the relevant preclinical investigations revealed neither mutagenic nor teratogenic effects, ceftriaxone should not be used in pregnancy (particularly in the first trimester) unless absolutely indicated.

***Hyperbilirubinemic Neonates:***

Ceftriaxone is contraindicated in hyperbilirubinemic neonates, especially prematures. In vitro studies have shown that ceftriaxone can displace bilirubin from its binding to serum albumin and bilirubin encephalopathy can possibly develop in these patients.

***Neonates (<28 days)***

Ceftriaxone must not be co-administered with calcium-containing IV solutions, including continuous calcium-containing infusions such as parental nutrition, in neonates because of the risk of precipitation of ceftriaxone-calcium salt.

Cases of fatal reactions with ceftriaxone-calcium precipitates in lung and kidneys in neonate have been described. In some cases the infusion lines and the times of administration of ceftriaxone and calcium-containing solutions differed.

**Warnings and precautions**

Hypersensitivity reactions may occur in susceptible individuals.

As with other cephalosporins, anaphylactic shock cannot be ruled out even if a thorough patient history is taken. Anaphylactic shock requires immediate countermeasures. Pseudomembranous colitis has been reported with nearly all antibacterial agents including ceftriaxone. Therefore, it is important to consider this diagnosis in patients who present with diarrhoea subsequent to the administration of antibacterial agents.

Superinfections with non-susceptible microorganisms may occur as with other antibacterial agents.

Shadows which have been mistaken for gallstones have been detected on sonograms of the gallbladder, usually following doses higher than the standard recommended dose. These shadows are, however, precipitates of calcium ceftriaxone which disappear on completion or discontinuation of ceftriaxone therapy. Rarely have these findings been associated with symptoms. In asymptomatic cases discontinuation of treatment is not recommended as the condition is reversible after completion of the treatment. In symptomatic cases, conservative

non-surgical management is recommended. Discontinuation of ceftriaxone treatment in symptomatic cases should be at the discretion of the clinician.

Safety and effectiveness of ceftriaxone in neonates, infants and children have been established for the dosages described in the Dosage and Administration section. In vitro studies have shown that ceftriaxone, like some other cephalosporins, can displace bilirubin from serum albumin. Caution should be exercised when considering ceftriaxone for hyperbilirubinaemic neonates, especially prematures. Ceftriaxone should not be used in neonates (especially prematures) at risk of developing bilirubin encephalopathy.

During prolonged treatment the blood profile should be checked at regular intervals.

### ***Interactions with Calcium-Containing Products***

In patients of any age ceftriaxone must not be missed or administered simultaneously with any calcium-containing IV solutions, even via different infusion lines or at different sites. However, in patients older than 28 days of age ceftriaxone and calcium-containing solutions may be administered sequentially one after another if infusion lines at different sites are used or if the infusion lines are replaced or thoroughly flushed between infusions with physiological salt-solution to avoid precipitation. In patients requiring continuous infusion with calcium-containing TPN solutions, healthcare professionals may wish to consider the use of alternative antibacterial treatments which do not carry a similar risk of precipitation. If use of ceftriaxone is considered necessary in patients requiring continuous nutrition, TPN solution and ceftriaxone can be administered simultaneously, albeit via different infusion lines at different site. Alternatively, infusion of TPN solution could be stopped for the period of ceftriaxone infusion, considering the advice to flush lines between solutions.

There are not reports to date of intravascular or pulmonary precipitations in patients, other than neonates, treated with ceftriaxone and calcium-containing IV solutions. However, the theoretical possibility exists for an interaction between ceftriaxone and IV calcium-containing solutions in patients other than neonates. Therefore, ceftriaxone and calcium-containing solutions, including continuous calcium-containing infusions such as parenteral nutrition, should not be mixed or co-administered to any patient irrespective of age, even via different infusion lines at different sites.

As a further theoretical consideration and based 5 half-lives of ceftriaxone, IV calcium-containing solutions and ceftriaxone should not be administered within 48 hours of each other, in any patient.

No data are available on the potential interaction between ceftriaxone and oral calcium-containing products or interaction between intramuscular ceftriaxone and calcium-containing products (IV or Oral).

### ***Pregnancy and Lactation:***

Safety in human pregnancy has not been established. Reproductive toxicity studies have been performed in mice and rats at doses up to 20 times the human dose of 2g/d (586 mg/kg/d in rats), and have not shown evidence of embryotoxicity, foetotoxicity, teratogenicity or adverse effects on male or female fertility, birth or peri- and postnatal development. In primates, no embryotoxicity or teratogenicity was demonstrated at a dose approximately 3 times the human dose (84 mg/kg/d in monkeys).

As ceftriaxone is secreted in the breast milk at low concentrations, caution is advised in nursing mothers.

### ***Effects on ability to drive and use machines:***

Data do not indicate an adverse effect on a person's ability to drive and use machines.

## **Adverse effects**

Ceftriaxone is generally well tolerated. During the use of ceftriaxone, the following side effects, which were reversible either spontaneously or after withdrawal of the medicine, have been observed:

### ***Systemic side effects:***

Gastrointestinal complaints (about 2% of cases): loose stools or diarrhoea, nausea, vomiting, stomatitis and glossitis. Haematological changes (about 2%): eosinophilia, leukopenia, granulocytopenia, haemolytic anaemia, thrombocytopenia.

Skin reactions (about 1%): exanthema, allergic dermatitis, pruritus, urticaria, oedema, erythema multiforme.

### ***Other, rare side effects:***

Headache and dizziness, increase in liver enzymes, symptomatic precipitation of the calcium salt of ceftriaxone in the gallbladder, oliguria, increase in serum creatinine, mycosis of the genital tract, shivering and anaphylactic or anaphylactoid reactions.

Pseudomembranous enterocolitis and coagulation disorders have been reported as very rare side effects.

Isolated cases of agranulocytosis ( $<500/\text{mm}^3$ ) have been reported, most of them following total doses of 20g or more.

### ***Local side effects:***

In rare cases, phlebitic reactions occurred after IV administration. These may be minimized by slow (two to four minutes) injection of the substance.

Intramuscular injection without lidocaine solution is painful.

### ***Interactions with Calcium***

Cases of fatal reactions with calcium-ceftriaxone precipitates in lung and kidneys in neonates and premature infants have been described. In some cases the infusion lines and times of administration of ceftriaxone and calcium-containing solutions differed. Ceftriaxone must not be mixed or administered simultaneously with calcium-containing solutions or products, even via different infusion lines.

## **Interactions**

No impairment of renal function has so far been observed after concurrent administration of large doses of ceftriaxone and potent diuretics (e.g. frusemide). There is no evidence that ceftriaxone increases renal toxicity of aminoglycosides. No effect similar to that of disulfiram has been demonstrated after ingestion of alcohol subsequent to the administration of ceftriaxone. Ceftriaxone does not contain an N-methylthiotetrazole moiety associated with possible ethanol intolerance and bleeding problems of certain other cephalosporins. The elimination of ceftriaxone is not altered by probenecid. In an in vitro study antagonistic effects have been observed with the combination of chloramphenicol and ceftriaxone.

In patients treated with ceftriaxone the Coombs' test may rarely become false-positive. Ceftriaxone, like other antibiotics, may result in false-positive tests for galactosaemia.

Likewise, nonenzymatic methods for the glucose determination in urine may give false-positive results. For this reason, urine-glucose determination during therapy with ceftriaxone should be done enzymatically.

## ***Interactions with Calcium***

In patients of any age ceftriaxone must not be missed or administered simultaneously with any calcium-containing IV solutions, even via different infusion lines or at different sites.

However, in patients older than 28 days of age ceftriaxone and calcium-containing solutions may be administered sequentially one after another if infusion lines at different sites are used or if the infusion lines are replaced or thoroughly flushed between infusions with physiological salt-solution to avoid precipitation. In patients requiring continuous infusion with calcium-containing TPN solutions, healthcare professionals may wish to consider the use of alternative antibacterial treatments which do not carry a similar risk of precipitation. If use of ceftriaxone is considered necessary in patients requiring continuous nutrition, TPN solution and ceftriaxone can be administered simultaneously, albeit via different infusion lines at different site. Alternatively, infusion of TPN solution could be stopped for the period of ceftriaxone infusion, considering the advice to flush lines between solutions.

## **Overdosage**

In the case of overdosage, drug concentration would not be reduced by haemodialysis or peritoneal dialysis. There is no specific antidote.

Treatment of overdosage should be symptomatic.

## **Pharmaceutical precautions**

### ***Incompatibilities:***

Ceftriaxone should not be added to solutions containing calcium such as Hartmann's solution and Ringer's solution. Based on literature reports ceftriaxone is incompatible with amsacrine, vancomycin and fluconazole and aminoglycosides.

Shelf-life: ceftriaxone: 2 years

Shelf-life for reconstituted solutions:

Reconstituted solutions retain their physical and chemical stability for six hours at room temperature (or 24 hours at 2-8°C).

Special precautions for storage:

Store below 25°C.

Instructions for use/handling:

Ceftriaxone powder must be reconstituted prior to use (see Dosage and Administration).

## **Medicine classification**

Prescription Medicine.

## **Package quantities**

Packs for injection containing:

1 vial with dry substance equivalent to 0.5g or 1g ceftriaxone.

Packs for IV infusion containing:

1 vial with dry substance equivalent to 2g ceftriaxone.

## **Further information**

Chemical Name:

CEFTRIAZONE (6R,7R)-7-[(Z)-2-(2-amino-4-thiazolyl)-2-[methoxyimino]acetamido]3-[[2,5-dihydro-6-hydroxy-2-methyl-5-oxo-as-triazin-3-yl]thio]methyl]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-carboxylic acid in the form of the disodium salt. Ceftriazone contains approximately 83mg (3.6m Eq) of sodium per gram of ceftriazone.

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