Ceftiofur

SCHEDULING STATUS: S4

CURRENTLY COMPOUNDED FORMULATIONS:

Active ingredient(s)	Injectable	Oral equine paste	Oral carnivore paste	Orals for exotics	Oral solution/suspension	Topical treatment	Shampoo	Capsules/Tablets	Oral powder
Ceftiofur hydrochloride	✓								

REGISTERED PRODUCT/ TRADE NAME: Excenel RTU® (out of stock)

PHARMACOLOGICAL CLASSIFICATION: 3rd generation cephalosporin

PHARMACOLOGICAL ACTION: Ceftiofur is a 3rd generation cephalosporin antibiotic active against a variety of gram-positive and gram-negative bacteria and like other cephalosporins inhibits bacteria cell wall synthesis, is usually bactericidal and is a time-dependent antibiotic. After administration, the parent compound (ceftiofur) is rapidly cleaved into furoic acid and desfuroylceftiofur (active). Desfuroylceftiofur inhibits cell wall synthesis (at stage three) of susceptible multiplying bacteria and exhibits a spectrum of activity similar to that of cefotaxime. Parent ceftiofur and the primary metabolite are equally potent and assays to measure microbial sensitivity (plasma and tissue levels) are based on ceftiofur equivalents referred to as CE. The protein binding activity of ceftiofur creates a "reservoir effect" to maintain active levels at the site of infection.[1]

In cattle, ceftiofur has a broad range of *in vitro* activity against a variety of pathogens, including many species of pasturella, streptococcus, staphylococcus, salmonella, and *E. coli*.
In swine, ceftiofur HCl has activity against the pathogens a*ctinobacillus pleuropneumoniae, pasteurella multocida, haemophilus parasuis* and s*treptococcus suis* for an extended period of time.[1]

INDICATIONS: In cattle, ceftiofur HCl is labelled for the treatment of the following bacterial diseases: Bovine respiratory disease (BRD, shipping fever, pneumonia) associated with *mannheimia haemolytica, pasteurella multocida,* and *histophilus somni*; acute bovine interdigital necrobacillosis (foot rot, pododermatitis) associated with *fusobacterium necrophorum* and *bacteroides melaninogenicus*; and acute metritis (0 – 14 days post-partum) associated with bacterial organisms susceptible to ceftiofur.[1]

In swine, ceftiofur HCl injection is labelled for the treatment and control of swine bacterial respiratory disease (swine bacterial pneumonia) associated with a*ctinobacillus (haemophilus) pleuropneumoniae*, *pasteurella multocida*, *salmonella choleraesuis* and *streptococcus suis*.[1]

DOSAGE AND DIRECTIONS FOR USE:

CATTLE:
For bovine respiratory disease and acute bovine interdigital necrobacillosis:
Administer to cattle by IM or SC injection at 1.1 to 2.2 mg/kg daily for a total of three consecutive days. Additional treatments may be given on days four and five for animals which do not show a satisfactory response.
For BRD only, administer IM or SC 2.2 mg/kg every other day on Days 1 and 3 (48h interval). Do not inject more than 15 ml per injection site.[1]

For acute post-partum metritis:
Administer by IM or SC 2.2 mg/kg daily for five consecutive days. Do not inject more than 15 ml per injection site.[1]

For neonatal salmonellosis:
5 mg/kg IM once daily for 5 days (Fecteau, House et al. 2002)[1]

Bovine respiratory disease and the acute stage of mild to moderate bovine footrot:
Not more than 10 ml should be administered per injection site.
1 mg/kg IM oid. Treatment should be repeated every 24 hours for a total of 3 treatments. Additional treatments may be given on days four and five for animals which do not show a satisfactory response (not recovered) after the initial three treatments.[2]

SWINE:
Administer to swine by IM injection at 3 to 5 mg/kg of body weight. Treatment should be repeated at 24-hour intervals for a total of three consecutive days.[1]

Swine respiratory disease:
Not more than 10 ml should be administered per injection site.
3 mg/kg IM oid. Treatment should be repeated every 24 hours for a total of 3 treatments. If no improvement is seen within 3-5 days, reconsider the diagnosis.[2]

WARNINGS/ PRECAUTIONS/ CONTRA-INDICATIONS:

- The withdrawal period is 3 days.
- Not for human use.[2]
- Cephalosporin overdoses are unlikely to cause significant problems other than GI distress, but other effects are possible.[1]
- In cattle, after intramuscular or subcutaneous administration in the neck, areas of discoloration at the site may persist beyond 11 days resulting in trim loss of edible tissues at slaughter. Following intramuscular administration in the rear leg, areas of discoloration at the injection site may persist beyond 28 days resulting in trim loss of edible tissues at slaughter.[1]
- In swine, areas of discoloration associated with the injection site at time periods of 11 days or less may result in trim-out of edible tissues at slaughter.[1]
- Milk taken from cows completing a 30-day dry cow period may be used with no milk discard. Following label use, no slaughter withdrawal period is required for neonatal calves born from treated cows regardless of colostrum consumption.[1]

REFERENCES:

1. Plumb's Veterinary Drug Handbook, Sixth edition, by Donald C. Plumb
2. MIMS IDR 2019/20