**CONTRAINDICATIONS**

The use of DRAXXIN Injectable Solution is contraindicated in animals previously found to be hypersensitive to the drug.

**WARNINGS**

FOR USE IN ANIMALS ONLY.

NOT FOR HUMAN USE.

KEEP OUT OF REACH OF CHILDREN.

NOT FOR USE IN CHICKENS OR TURKEYS.

**RESIDUE WARNINGS**

Cattle

Cattle intended for human consumption must not be slaughtered within 18 days from the last treatment. Do not use in female dairy cattle 20 months of age or older.

Swine

Swine intended for human consumption must not be slaughtered within 5 days from the last treatment.

**PRECAUTIONS**

Cattle

The effects of DRAXXIN on bovine reproductive performance, pregnancy, and lactation have not been determined.

Subcutaneous injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

Swine

The effects of DRAXXIN on porcine reproductive performance, pregnancy, and lactation have not been determined.

Intramuscular injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.

**ADVERSE REACTIONS**

Cattle

In one BRD field study, two calves treated with DRAXXIN at 2.5 mg/kg BW exhibited transient hypersalivation. One of these calves also exhibited transient dyspnea, which may have been related to pneumonia.

Swine

In one field study, one out of 40 pigs treated with DRAXXIN at 2.5 mg/kg BW exhibited mild salivation that resolved in less than four hours.

**CLINICAL PHARMACOLOGY**

At physiological pH, tulathromycin (a weak base) is approximately 50 times more soluble in hydrophilic than hydrophobic media. This solubility profile is consistent with the extracellular pathogen activity typically associated with the macrolides. Markedly higher tulathromycin concentrations are observed in the lungs as compared to the plasma. The extent to which lung concentrations represent free (active) drug was not examined. Therefore, the clinical relevance of these elevated lung concentrations is undetermined.

Although the relationship between tulathromycin and the characteristics of its antimicrobial effects has not been characterized, as a class, macrolides tend to be primarily bacteriostatic, but may be bactericidal against some pathogens. They also tend to exhibit concentration independent killing; the rate of bacterial eradication does not change once serum drug concentrations reach 2 to 3 times the minimum inhibitory concentration (MIC) of the targeted pathogen. Under these conditions, the time that serum concentrations remain above the MIC becomes the major determinant of antimicrobial activity. Macrolides also exhibit a post-antibiotic effect (PAE), the duration of which tends to be both drug and pathogen dependent. In general, by increasing the macrolide concentration and the exposure time, the PAE will increase to some maximal duration. Of the two variables, concentration and exposure time, drug concentration tends to be the most powerful determinant of the duration of PAE.

Tulathromycin is eliminated from the body primarily unchanged via biliary excretion.

**REFERENCES**


3. Clearance and volume estimates are based on intersubject comparisons of 2.5 mg/kg BW administered by either subcutaneous or intravenous injection.
**Foot Rot** - The MICs of tulathromycin were determined for Actinobacillus pleuropneumoniae and Porphyromonas levii obtained from cattle entered in foot rot field studies in the U.S. and Canada. Isolates were obtained from pre-treatment interdigital biopsies and swabs of cattle with clinical signs of foot rot enrolled in the DRAXXIN and saline-treated groups. The results are shown in Table 3.

<table>
<thead>
<tr>
<th>Indicated pathogens</th>
<th>Date isolated</th>
<th>No. of isolates</th>
<th>MIC50 (μg/mL)</th>
<th>MIC90 (μg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannheimia haemolytica</td>
<td>2000</td>
<td>20</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Pasteurella multocida</td>
<td>2000</td>
<td>16</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Mycoplasma bovis</td>
<td>2000</td>
<td>10</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Fusobacterium necrophorum</td>
<td>2000</td>
<td>5</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Porphyromonas levii</td>
<td>2000</td>
<td>10</td>
<td>0.5</td>
<td>2.0</td>
</tr>
</tbody>
</table>

* The correlation between in vitro susceptibility data and clinical effectiveness is unknown.

**Swine**

In vitro activity of tulathromycin has been demonstrated against Actinobacillus pleuropneumoniae, Pasteurella multocida, Bordetella bronchiseptica, Haemophilus parasuis, Actinobacillus pleuropneumoniae, and Pasteurella multocida. The MICs of tulathromycin against indicated SRD pathogens were determined using methods recommended by the Clinical and Laboratory Standards Institute (CLSI, M31-A and M31-A3). MICs for Haemophilus parasuis were determined using Veterinary Fastidious Medium and were incubated up to 48 hours at 35°C in a CO2-enriched atmosphere. All MIC values were determined using the 9.1 isomer ratio of this compound. Isolates obtained in 2000 and 2002 were from lung samples from saline-treated pigs and non-treated sentinel pigs enrolled in Treatment of SRD field study in the U.S. and Canada. Isolates obtained in 2007 and 2008 were from lung samples from saline-treated and DRAXXIN-treated pigs enrolled in the Control of SRD field study in the U.S. and Canada. The results are shown in Table 4.

<table>
<thead>
<tr>
<th>Indicated pathogens</th>
<th>Date isolated</th>
<th>No. of isolates</th>
<th>MIC50 (μg/mL)</th>
<th>MIC90 (μg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actinobacillus pleuropneumoniae</td>
<td>2000-2002</td>
<td>230</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Pasteurella multocida</td>
<td>2000-2002</td>
<td>75</td>
<td>0.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Bordetella bronchiseptica</td>
<td>2000-2002</td>
<td>42</td>
<td>0.5</td>
<td>2.0</td>
</tr>
</tbody>
</table>

**ANIMAL SAFETY**

Cattle

Safety studies were conducted in feeder calves receiving a single subcutaneous dose of 25 mg/kg BW, or 3 weekly subcutaneous doses of 2.5, 7.5, or 12.5 mg/kg BW. In all groups, transient indications of pain after injection were seen, including head shaking and pawing at the ground. Injection site swelling, discoloration of the subcutaneous tissues at the injection site and corresponding histopathologic changes were seen in animals in all dosage groups. These lesions showed signs of resolving over time. No other drug-related lesions were observed macroscopically or microscopically.

An exploratory study was conducted in feeder calves receiving a single subcutaneous dose of 10, 12.5, or 15 mg/kg BW. Macroscopically, no lesions were observed. Microscopically, mild to mild myocardial degeneration was seen in one of six calves administered 12.5 mg/kg BW and two of six calves administered 15 mg/kg BW.

A safety study was conducted in preruminant calves 13 to 27 days of age receiving 2.5 mg/kg BW or 7.5 mg/kg BW once subcutaneously. With the exception of minimal to mild injection site reactions, no drug-related clinical signs or other lesions were observed macroscopically or microscopically.

**Swine**

Safety studies were conducted in pigs receiving a single intramuscular dose of 25 mg/kg BW, or 3 weekly intramuscular doses of 2.5, 7.5, or 12.5 mg/kg BW. In all groups, transient indications of pain after injection were seen, including restlessness and excessive vocalization. Tremors occurred briefly in one animal receiving 7.5 mg/kg BW. Discoloration and edema of injection site lesions and corresponding histopathologic changes were seen in animals at all dosages and resolved over time. No other drug-related lesions were observed macroscopically or microscopically.

**STORAGE CONDITIONS**

Store at or below 25°C (77°F)

**HOW SUPPLIED**

DRAXXIN Injectable Solution is available in the following package sizes:

- 50 mL vial
- 100 mL vial
- 250 mL vial
- 500 mL vial

NADA 141-244, Approved by FDA

Distributed by Zoetis Inc. Kalamazoo, MI 49007

To report a suspected adverse reaction or to request a safety data sheet call 1-888-963-8471. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/AnimalVeterinary/SafetyHealth.

For additional DRAXXIN product information call 1-888-963-8471 or go to www.DRAXXIN.com

Made in Brazil

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