

# BIO-3

## Injection

For Veterinary Use Only

### COMPOSITION

Each ml contains

Gentamycin as Sulphate .....30mg

Sulphadimidine as sodium .....125mg

Trimethoprim .....25mg

### INDICATIONS

Bio 3 injection is indicated for the treatment of metritis, mycoplasma infections, respiratory tract infection, urinary tract infections, and effective against a wide range of gram positive and negative bacteria.

### CONTRAINDICATIONS

Contraindicated in case of hypersensitivity to any of active ingredients.

### ADVERSE REACTIONS (FREQUENCY AND SERIOUSNESS)

Use of the product may result in localised tissue reaction and sometimes crystalluria when urine pH is low.

### USE DURING PREGNANCY, LACTATION OR LAY

The reproductive safety of BIO 3 Injection has not been specifically investigated in pregnant animals.

### INTERACTION WITH OTHER MEDICINAL PRODUCTS AND OTHER FORMS OF INTERACTION

None described.

### DOSAGE & ADMINISTRATION

For Intramuscular and subcutaneous administration.

**Cattle/Camel/Horse:** 10 ml per 100kg body weight.

**Poultry:** 0.1ml per kg body weight

### PHARMACOLOGY

Gentamicin is a broad spectrum antibiotic that is active against: a) Gram-negative germs such as *E. coli*, *Shigella*, *Salmonella*, *Proteus*, *Pseudomonas*, *Klebsiella* and *Pasteurella*. b) Some Gram-positive germs such as *Staphylococcus*, *Streptococcus* and *Corynebacterium* c) *Mycoplasma* spp.

The Minimum Inhibitory Concentrations (MIC) in vitro are between 0.1 and 10 µg/ml. Gentamicin inhibits the bacterial protein synthesis at the level of the 30S ribosomal subunit and this interferes with the uptake of phenylalanine. At high concentrations the structure of the bacterial cell wall is irreversibly damaged so that there is a lysis of the bacterial cell. Gentamicin has a bacteriostatic activity at low concentrations and has a bactericidal activity at high concentrations.

Sulfadimidine is a member of the Sulphonamide group of antibiotics. It exerts its bacteriostatic effect by interfering with the biosynthesis of folic acid in susceptible bacteria. Sulfadimidine competes with paraminobenzoic acid for the enzyme dihydropterate synthetase.

Trimethoprim is a reversible inhibitor of dihydrofolate reductase, one of the principal enzymes catalyzing the formation of tetrahydrofolic acid (THF) from dihydrofolic acid (DHF). Tetrahydrofolic acid is necessary for the biosynthesis of bacterial nucleic acids and proteins and ultimately for continued bacterial survival - inhibiting its synthesis, then, results in bactericidal activity. Trimethoprim binds with a much stronger affinity to bacterial dihydrofolate reductase as compared to its mammalian counterpart, allowing trimethoprim to selectively interfere with bacterial biosynthetic processes.

Trimethoprim is often given in combination with sulfamethoxazole, which inhibits the preceding step in bacterial protein synthesis - given together, sulfa group and trimethoprim inhibit two consecutive steps in the biosynthesis of bacterial nucleic acids and proteins. As a monotherapy trimethoprim is considered bacteriostatic, but in combination with sulfa group is thought to exert bactericidal activity.

### PRECAUTIONS

Do not administer to animals with hypersensitivity to active ingredient.

Keep at room temperature, protect from light.

Store between 15-25°C at a cool and dry place.

Keep out of the reach of children.

Consult the veterinarian before use.



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