FIPMed Injectable Vials

FIPMed Injection Vials contain the active ingredient GS441524. A feline patient can be given FIPMed Injection Vials for the treatment of Feline Infectious Peritonitis disease. FIPMed works by inhibiting the replication of the Feline Coronavirus FCov in the cat.

PRODUCT NAME

Fipmed (GS441524) Injection Vials 20mg/ml 7ml

QUALITATIVE AND QUANTITATIVE COMPOSITION

Fipmed Injection Vials contain the active substance GS441524 for subcutaneous administration. Each ml contains 20mg of GS441524.

PHARMACEUTICAL FORM

Fipmed Injection Vials is available as a a clear liquid in 7ml vials.

THERAPEUTIC INDICATIONS

Fipmed is indicated for the treatment of mild to moderate Feline Infectious Peritonitis disease. FIPMed works by inhibiting the replication of the Feline Coronavirus FCov in the cat.

HOW TO ADMINISTER FIPMED INJECTIONS

- Inject 1x Fipmed Injectables every 24 hours at the same time everyday
- Inject Fipmed for a minimum of 84 days
- After 30 days, if patient improved to a healthy state, the treatment can be continued with tablet usage.

DOSE AND METHOD OF ADMINISTRATION

Proper dosing is crucial in treating FIP. The dosage for cats with Wet or Dry FIP and no ocular or neurological disease signs is 6mg/kg of cat weight daily for 12 weeks, according to studies with GS-441524.

A GS-441524 daily dose of 8mg/kg of cat weight is suggested for Ocular FIP. Meanwhile, for Neurological FIP cases, a daily dose of 10 mg/kg of GS-441524 is recommended.

It's important to follow the prescribed dosage strictly and not adjust it without consulting a veterinarian. Inaccurate dosing can lead to ineffective treatment or even adverse effects on the cat's health.

This is the most used treatment for FIP, as well as the most documented. It is effective for all forms of FIP (with correct dosing).

As cats become healthier from treatment, however, it becomes more difficult for the drug to penetrate the blood-brain barrier, which suggests higher doses will be necessary if the virus has made it past the blood-brain barrier. FIP is more likely to have entered the brain in Ocular and Neurological FIP cases and in relapse cases.

The typical protocol is 12 weeks (84 days) of continuous treatment:

6 mg/kg for cases without ocular or neurological involvement
8 mg/kg (minimum) for ocular FIP cases
10 mg/kg (minimum) for neurological FIP.

Please increase the dosage by 50% for all relapse cases, and 2mg/kg for advanced cases.

Ocular and neurological cases may require higher doses as there is variation between cats in the amount of GS-441524 that crosses the blood/brain barrier.

The safety and efficacy of Fipmed when administered for periods of 84 days have been established. Fipmed should be administered as soon as possible after a diagnosis of Feline Infectious Peritonitis has been made.

Other considerations:

Age
Younger cat tend to require lower dose due to their size and weight, as well as faster rate of recovery.

Kitten population
Safety and efficacy of Fipmed have not been established in patients less than 3 months of age

Older patients
No dose adjustment is recommended for older feline patients.

Renal impairment
No dose adjustment is required in patients with renal impairment

Hepatic impairment
No dose adjustment is recommended in patients with hepatic impairment

Pregnancy
GS-441524 does not have any negative effects on fetal development or normal kittens when it is administered to the queen.

Higher dosage for relapse and advanced cases

For relapse cases, increase the dosage by 50%. Alternatively, veterinarians may also choose to combine treatment with GC376. For advanced cases, kindly add 2mg to the dose, regardless of type of FIP.

Missed dose

If the patient misses a dose of Fipmed within 10 hours of the time it is usually taken, the patient should take it as soon as possible and resume the normal dosing schedule. If a patient misses a dose by more than 10 hours, the patient should not take the missed dose and instead take the next dose at the regularly scheduled time. The patient should not double the dose to make up for a missed dose.

SPECIAL PRECAUTIONS BEFORE USAGE

Sometimes refrigeration or cold temperatures in winter may lead to crystalization of active ingredient in the vials. Should the active ingredient in the vial crystalizes, place the vial in a bowl of warm water of 40°C and wait for the solution to clear before usage.

GS441524 FIP TREATMENT DURATION - 84 DAYS

Treatment for FIP must be continued consecutively for a duration of 84 days. Adhering to this procedure is crucial to maximize the cat's chances of recovery.

The FCoV, FIPV, and FeCV viruses have a 90-day lifespan within the cat's body, during which the feline coronavirus has ample opportunity to reproduce and develop into advanced FIP.

During this period, a significant number of cats may exhibit minimal or no symptoms, which complicates the process of diagnosing the condition until symptoms reach a severe stage.

Therefore, it is imperative that any treatment regimen utilizing GS441524 has a minimum duration of 84 consecutive days of therapy. It aids in guaranteeing the complete eradication of any lingering viruses throughout its duration.

An antiviral agent inhibits viral replication and hinders the progression of the virus throughout its life cycle. It does not eradicate the virus, but rather temporarily halts viral reproduction, allowing the body's immune system to eliminate any leftover viral particles.

Premature cessation of therapy may lead to insufficient clearance of any residual viral material, potentially leading in relapse or treatment failure.

Occasionally, cats diagnosed with Feline Infectious Peritonitis (FIP) may necessitate therapy for a duration exceeding the suggested 84-day timeframe. This may be attributed to several underlying reasons, such as the severity of the cat's disease or the persistence of the virus in their body even after 84 days of therapy.

Undesirable effects

There are no severe adverse events reported while subjects were within 84 days of intervention completion/discontinuation. Injection site sores can complicate therapy with the injectable form of GS441524.

STORAGE AND STABILITY

Special precautions for storage:

4°C to store for up to 2 years
Safely keep between 20°C - 45°C for up to 3 months

Special precautions for disposal

Any unused medicine or waste material should be disposed of in accordance with local requirements.

INTERACTION WITH OTHER MEDICINES AND OTHER FORMS OF INTERACTION

Immunosuppressants or Steroids

During the early illness, supportive (symptomatic) medication may be required to keep cats alive long enough for antivirals to act. Immunosuppressants are frequently included in the medications (Corticosteroids such as Prednisolone). It is preferable to avoid using these medications excessively, unless on a short-term basis and only if there is a compelling rationale for doing so, especially in extremely unwell cats over the first few days.

The primary objective of treating FIP is to prevent viral replication in macrophages, which will instantly stop the generation of the various inflammatory and immunosuppressive cytokines that produce FIP symptoms.

While certain medications, such as corticosteroids (prednisolone) and NSAIDS (meloxicam), may reduce inflammatory cytokines, GS-441524 totally block these damaging cytokines. Within 24-48 hours, FIPMed will induce significant improvements in temperature, activity, hunger, and other symptoms.

This improvement will be significantly greater than any other drug can provide. As a result, unless there is a compelling reason to continue using other medications, they should be discontinued as soon as there is a noticeable and consistent improvement in FIP symptoms.

In addition to masking FIP-related symptoms, steroids may interfere with the distribution of GS-441524 through the blood-brain barrier. Several investigations have demonstrated that steroids can reduce permeability across the blood-brain barrier. In cats, decreased permeability may reduce the efficiency of GS-441524 and raise the likelihood of relapse.

Once the cat is stable, they need to be weaned off the prednisolone. The recommended dosage of Prednisolone for the first few days is 2mg/kg of weight. Subsequently, gradually reduce to 1 mg/kg and wean it completely.

Antibiotics

Fluoroquinolone antibiotics, such as Baytril/Enroflaxin, Zeniquin, Veraflox/ Pradofloxacin and Orbax contain fluorine and can enter the brain and nervous system. Because of that, their side effects can cause neurologic symptoms.

As we are treating very sick cats, we want to try not to add new symptoms that could confuse treatment when possible. If your veterinarian believes a fluoroquinolone antibiotic is needed, please follow their advice since there are some diseases that must take this class of drug.

Sometimes antibiotics are needed along with FIP Medication for secondary conditions.

The following antibiotics are allowed for use to treat secondary infections:
Cephalosporins (such as Zithromax, Cephalexin, Cefovecin, and others), Amoxicillin, Penicillin, Clavamox/Augmentin, Doxycycline, and Clindamycin

Drugs that may impact the CNS

FIP may pass through the blood-brain barrier. Drugs that impact the central nervous system may impact permeability across the blood-brain barrier, which could reduce the effectiveness of FIP treatment.

Painkillers

It is generally better to avoid providing painkillers to your cat if it's not necessary. However, if your cat is really suffering from a lot of pain, you can supply your cat with Meloxicam. Besides relieving pain, it is also anti-inflammatory in nature, and is a lesser devil compared to Corticosteroids.

Lysine

L-Lysine should not be given during FIP treatment. It binds with and ties up the body's arginine which is an essential part of the immune system. Lysine is also hostile to arginine, which is required for immunological function.

ADJUSTMENTS OF DOSAGE THROUGHOUT TREATMENT JOURNEY

We recommend that the dose be modified with weekly weight checks. Many of these cats might gain a lot of weight, either because they are so skinny in the start or because they are growing, or both.

If there is some weight loss during the first few weeks of therapy, do not reduce the dosage. Failure to gain a good amount of weight during treatment is considered a bad sign.

Do not increase a dosage unless there are compelling reasons to do so, such as failure, sluggish progress, low activity levels, failure of initial clinical indicators to resolve, or a change in disease form to include ophthalmic or neurological symptoms.

Here is where the art comes in, since you don't want to become too focused on blood levels that aren't quite typical and overlook the cat's general health.

For example, the globulin may still be a bit high, but other essential blood test readings and health status are fine. If there is significant reason to increase the dosage, it should always be from +2 to +5 mg/kg daily and for a minimum of 4 weeks. If 4 weeks extends the 12-week treatment time, the treatment time is extended to accommodate.

A positive response to any increase in dosage should be expected, and failure to see improvement indicates that the dosage is still insufficient, drug resistance is occurring, the cat does not have FIP, or there are other diseases complicating the treatment.

PHARMACOLOGICAL PROPERTIES

Therapeutic class

FIPMed GS411524 is an antiviral drug.

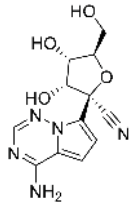
Chemistry

GS-441524 is a potent inhibitor of feline infectious peritonitis (FIP) virus with an EC50 of 0.78 μM. GS-441524 strongly inhibits Feline Infectious Peritonitis (FIP) virus in tissue culture and experimental cat infection studies. GS-441524 is a molecular precursor to a pharmacologically active nucleoside triphosphate molecule. These analogs act as an alternative substrate and RNA-chain terminator of viral RNA dependent RNA polymerase.

The chemical name of GS441524 is (2R,3R,4S,5R)-2-(4-Aminopyrrolo[2,1-f][1,2,4]triazin-7-yl)-3,4-dihydroxy-5-(hydroxymethyl)tetrahydro-2-furancarbonitrile.

It has an empirical formula of C12H13N5O4 and its molecular weight is 291.3 g/mol

The purity of this medication is ≥ 98%

Its structural formula is 

Mechanism of action

GS441524, distributes into cells where it is phosphorylated to form the pharmacologically active nucleoside triphosphate molecule. It acts by a mechanism known as viral error catastrophe. NTP incorporation into viral RNA by the viral RNA polymerase, results in an accumulation of errors in the viral genome leading to inhibition of replication.

PHARMACOKINETIC PROPERTIES

Absorption
Following once daily subcutaneous administration of Fipmed, the median time to peak plasma NTC concentrations (Tmax) was 2 hours.

Effect of Food
Fipmed can be taken with or without food.

Metabolism
GS441524 is hydrolysed to NTC prior to reaching systemic circulation. Uptake and metabolism of NTC are mediated by the same pathways involved in endogenous pyrimidine metabolism. NTC is not a substrate of major drug metabolizing enzymes or transporters. Neither GS441524 nor NTC are inhibitors or inducers of major drug metabolizing enzymes or transporters.

Elimination
The effective half-life of NTC is approximately 12 hours.

FIRST AID MEASURES

General Information: Immediately remove any clothing contaminated by the product. Move out of dangerous area.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical aid.

Skin contact: Immediately flush skin with running water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Obtain medical aid immediately.

Eye contact: Immediately flush open eyes with running water for at least 15 minutes. Obtain medical aid immediately.

Ingestion: Do NOT induce vomiting without medical advice. Rinse mouth with water. Never administer anything by mouth to an unconscious person. Obtain medical aid immediately.

CLINICAL TRIALS

Efficacy and safety of the nucleoside analog GS-441524 for treatment of cats with naturally occurring feline infectious peritonitis

Niels C Pedersen, Michel Perron, Michael Bannasch, Elizabeth Montgomery, Eisuke Murakami, Molly Liepnieks, and Hongwei Liu. Published online 2019 Feb

https://ccah.vetmed.ucdavis.edu/sites/g/files/dgvnsk4586/files/inline-files/Use%20of%20oral%20GS-441524%20for%20FIP%20treatmemt.pdf

FOR MORE INFORMATION, PLEASE CONTACT US:

www.fipmed.co
support@fipmed.co