

FCOV AND FIP PATHOGENESIS CASE STUDIES



Dr. Diane D. Addie
PhD, BVMS, MRCVS



Q&A

▶ Treating coronavirus enteritis questions: drugs and dosages

Summary:

GS-441524 doses: if you are using this antiviral from Bova or another compounding pharmacy where the exact amount of GS contained is known, treat with 10mg/kg per day, divided into two doses and use for 5 to 7 days (where there are more than 2 cats in the household, I tend to recommend the longer duration of treatment).

Other brands of GS-441524 may contain more (or less) GS-441524 than they claim, so it is best to follow their instructions and recommendations. Mutian is the best of the brands available online, and their Mutian 200 pill contains almost 20mg of GS-441524, not 10mg as claimed by Mutian. (Reference: <https://www.mdpi.com/1999-4915/15/4/818>)

Molnupiravir / EIDD-2801 doses: Based on Dr Sase's protocol for treating FIP I expect the dose for treating FCoV-related chronic enteropathy / inflammatory bowel disease to be : 10 mg/kg twice daily (i.e. 20mg per cat per day).

Remember that there is a colonic form of FIP, so be sure to differentiate that from the IBD type of FCoV enteropathy. You should be able to palpate thickening of the gut if the cat has colonic FIP.

Dr Sase's paper is available free here: <https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.16832>) Dr Sase's paper describes how to make your own molnupiravir pills.

Be aware that EIDD made by manufacturers other than HETERO HEALTHCARE, Hyderabad, India, may contain variable amounts of drug. Thankfully independent researchers are assessing various brands of online antivirals: watch my catvirus.com website for updates.

What doses of GS you have used for intestinal coronavirus enteritis treatment?

This is a really good question but a difficult one, because all of the available brands contain differing amounts of GS-441524 or molnupiravir. In our publication (available here: <https://www.sciencedirect.com/science/article/pii/S0034528819312056>) we found the optimal dose was - allegedly - 4mg/kg per day for at least 4 days (I recommend 5 to 7 days now).

I said "allegedly" because we were using Mutian X, but since that time discovered that Mutian X pills contain nearly twice as much GS-441524 as the manufacturers claim, therefore we are now aiming for a dose of 10mg/kg/q24h for clearing FCoV from the gut and twice that dose for molnupiravir. Please see the summary box above for further information.

Which drugs and active ingredients do you think are the most effective treatment protocols?

Thank you for this great question: please see my answers above and the Summary of FIP treatment below. In addition, please look at the FIP Treatment page on www.catvirus.com. If you would like to join my mailing list for updates, please email me at draddie@catvirus.com and just put Vet Newsletter in the subject. FIP treatment is a rapidly changing subject and I am changing my mind as new information becomes available.

Have you used any of the covid drugs to treat corona positive cats in a cattery?

I have only personally tried ivermectin and zinc picolinate and while it reduced FCoV shedding, it rarely eradicated it. GS-441524 was much more effective and also faster. Please also see the summaries of the various headings (e.g. remdesivir) for more information on your important question.

Regarding those infection that leads to chronic enteropathy, it is something that can happen just in kittens or can be a DD also in adult cats with chronic diarrhoea and how would you be able to diagnose it? can be done fecov rt-pcr on mesenteric nodes FNA or is necessary biopsy? I have a case that is an adult cat with horrible diarrhoea not responding to anything and he had a positive titre for fecov antibodies..should I try to do fecov rt prc on some other samples?

Chronic FCoV enteropathy is absolutely a diagnosis for older cats even more than in kittens. I have mostly seen it in cats who became coronavirus carrier cats and many of them were aged over 10 years.

Diagnosis is by RT-PCR of faeces to demonstrate FCoV RNA.

I see from the questions that many of you don't have access to a good FCoV RT-PCR test. In the absence of a test, diagnosis could be by trial treatment: only 7 days of oral GS-441524 or molnupiravir is required and you should see improved faecal consistency within a few days. See the summary above for dosages.

And my last question is using oral molnupiravir can be effective as much as GS-441524 to reduce viral replication in gastrointestinal system?

Nobody has published a paper on this and I have only one cat guardian who has tried it on a few cats: it seemed to work, but it is an area that requires more investigation. Good question!

▶ Treating FIP questions: drugs and dosages

Summary:

GS-441524 doses: if you are using this antiviral from Bova or another compounding pharmacy where the exact amount of GS contained is known, begin treatment with 20mg/kg per day, divided into two doses. Continue at that level of dose in neurological and ocular FIP cases until the patient has fully recovered. However, in effusive FIP or non-effusive FIP without neurological or ocular signs, the dose can be reduced to 10mg/kg after around 2 weeks: the high dose is to clear the brain of virus, in an attempt to avoid neurological relapses.

Other brands of GS-441524 may contain more (or less) GS-441524 than they claim, so it is best to follow their instructions and recommendations. Mutian is the best of the brands available online, and their Mutian 200 contains almost 20mg of GS-441524. (Reference: <https://www.md-pi.com/1999-4915/15/4/818>)

Molnupiravir / EIDD-2801 doses: I recommend using Dr Sase's protocol: 20 mg/kg twice daily (i.e. 40mg per cat per day) for cats with neurological or ocular signs of FIP and half that dose for effusive FIP. (Sase, 2023 available free here: <https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.16832>) Dr Sase's paper describes how to make your own molnupiravir pills. Be aware that EIDD made by manufacturers other than Hetero Healthcare in India, or Merck, may contain variable amounts of drug. Thankfully independent researchers are assessing various brands of online antivirals: watch my catvirus.com website for updates.

Duration of treatment

Where available, use AGP or SAA testing to assess when a cat has recovered, rather than being in remission, to know when to stop treatment (usually about 8 weeks, but can be longer) please see my paper on using acute phase proteins to know when to stop treatment - <https://www.md-pi.com/1999-4915/14/4/744/htm#>

First of all thank you, it was an educational presentation. What is the best treatment protocol for FIP? What active ingredients does it consist of?

Thank you for your kind words. The summary above was inspired by your question.

Do you have any opinions about EIDD_2801 treatment?

The EIDD part of the summary above was inspired by your question.

I am a veterinarian from turkey. I work in a clinic. we use the GS drug on many patients and have had really good results. Do you have any idea about the working mechanism and content of the drug? Unfortunately, FIP medicine is very expensive in Turkey

GS-441524 is an adenosine nucleoside analogue, it works by stopping the virus from replicating by interfering with the formation of viral RNA.

Is the cost of the molnupiravir also too expensive for people in Turkey? I know inflation is bad in your country. Dr Sase sourced her molnupiravir from India.

Thank you dok. if the antiboby FCOv positif. can we try and start treatment with anticorona oral for 2 weeks? because honestly, in my clinic there's no RT PCR to confirm FIP or histopatology diagnostic.

I do understand your dilemma, but I would request that you also use the catvirus.com FIP diagnostic algorithm to try to work out the probability whether or not an individual cat has FIP (www.catvirus.com - Downloads page). I do know that people are trying treating with an antiviral as a diagnostic technique, but it does concern me that this could lead to other differential diagnoses not being made, similarly to what happened with Theo (full case study here: <https://youtu.be/KmB6lu8Jg2Q>) - people become so fixated on FIP that they forget other conditions. FIP is actually a very uncommon condition, whereas being FCoV antibody positive is common. I have appealed to manufacturers to at least add an acute phase protein marker to their tests to increase FIP specificity, but sadly none of them have yet done so.

Comparing mechanisms of the chain termination of the remdesivir and mutagenesis of the molnupiravir which antiviral is more effective?

Previously, I would have unhesitatingly said that molnupiravir is a better treatment than remdesivir because molnupiravir is given orally and remdesivir is by injection, but a new paper by Cosaro et al (can be downloaded free at this link: doi: 10.3390/v15081680) seems to show that remdesivir can be effective by mouth.

At present, I do not have enough information to say whether remdesivir or molnupiravir is a better treatment for FIP.

Our 13-year-old cat's corona turned into FIP. He is losing weight, there are sores in his mouth, and his hind legs have started to have gait problems. We started using GS-441524. The normal recommended dose is 8mg/kg, but we were worried that the medication would cause fatigue because he was OLD. Should we calculate the dose the same way as for every cat?

Yes, the same dose protocol should be used regardless of age. However, the recommended dose for neurological FIP is 20mg/kg, if you are using Bova GS-441524.

Please see my antiviral dosage recommendations in the Summary above.

I haven't found any real side effects to be reported with cats on Mutian or Bova GS-441524, other than occasional vomiting of the pills, and that is sorted by giving a little food before dosing.

Regarding sores in his mouth: please try ivermectin at 0.2mg/kg with zinc picolinate and meloxicam. Please friend me on MeWe and join the feline chronic gingivostomatitis group there.

We have a cat. He is 13 years old and his corona has turned into a fever. He is losing weight, there are sores in his mouth, and his hind legs have started to have gait problems. We started using GS-441524. The normal recommended dose is 8mg/kg, but we were worried that the medication would cause fatigue because he was OLD. Should we calculate the dose as for every cat?

Isn't this the same question as number 28? Please see my reply above and God bless your cat and I pray He will heal him.

1. What is the best vaccination program with FCoV positive cats? See 13.1

2. Some cats diagnosed with FIP may also be FIV/FeLV positive. Is GS treatment sufficient in this case? Is it appropriate to use feline interferon with GS?

There are no publications on treating FIP cats co-infected with FeLV or FIV. My own publication years ago on a cohort of cats in a household with all three viruses endemic confirmed that cats with FeLV have much shorter life-spans, but strangely I found that the cats with FIV had a longer life expectancy than the FIV negative cats. I had a case recently where we cleared FCoV infection in an FIV positive cat using 15mg/kg per day of GS-441524 from Bova for 7 days.

You can use feline interferon omega along with GS-441524 and also I use it orally at a dose of 100,000 units per cat per day at the end of the GS-441524 course for at least 6 months. Virbagen Omega is also used to treat FeLV: a series of 5 injections every other day given every 6 months.

Thank you for important information but the preparations you suggest are not available in Turkey such virbagen, mutien vs

I think Mutian will mail their treatment anywhere in the world: search for Mutian in a search engine and you'll find their website although you may have to search in English - I don't know if they have a website in Turkish.

You Turkish vets asked me about ivermectin, which was an eye-opener for me, so I looked into it. Ivermectin at 0.2mg/kg per day along with 5mg of zinc picolinate improved about 50% of chronic enteropathy cases in a study we have not yet published. You can go as high as 0.4mg/kg ivermectin per day, but warn the owners about possible toxic signs and to stop ivermectin if any neurological signs appear. GS-441524 worked better, but the ivermectin / zinc picolinate did help some cats. I haven't yet used this protocol in FIP.

Do you have any suggestions for antivirals other than GS.

Please see my reply above, regarding ivermectin, and the many questions about molnupiravir above and below. Prior to these anti-coronavirus drugs I was using the broad-spectrum antiviral, feline interferon omega along with meloxicam: sadly only a few of the cases recovered, but it kept some cats in remission for a while.

Do you think molnupiravir capsules are as successful as GS-441524 for FCoV treatment? What do you think?

I do not have experience of using molnupiravir, but the few published papers on it seem to suggest it is also good. Please see the molnupiravir paper by Sase. it is free to download: <https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.16832>

And the molnupiravir paper by Roy et al, is also free to download: <https://www.mdpi.com/2076-0817/11/10/1209>

Is it used in molnupiravir treatment?

I hope the replies above and below answer your question? I don't know to what the "it" in your question refers?

Are there any clinical studies on molnupiravir (eidd) capsule? What can Lysin say about its use?

Yes; see the molnupiravir paper by Sase. and it's free to download: <https://onlinelibrary.wiley.com/doi/full/10.1111/jvim.16832>

Molnupiravir paper by Roy et al, is also free to download: <https://www.mdpi.com/2076-0817/11/10/1209>

Please watch my films about why you should NEVER use L-lysine in the cat:

Do not give lysine to cats with FIP: this film explains why L-lysine will be detrimental to helping monocytes fight off FCoV:

<https://odysee.com/@Catvirus:3/Lysine-FIP:2>

<https://www.bitchute.com/video/5lndb4SPOb12/>

<https://youtu.be/D4bRVuXTxRQ>

Urea cycle and arginine: this film explains the problem with L-lysine in more detail.

<https://www.bitchute.com/video/U8UksBkxUqFK/>

https://odysee.com/@Catvirus:3/Arginine_Urea_Cycle_Cat:4

<https://youtu.be/SbnGZwp174o>

Considering delayed macrophage apoptosis is 84 days general treatment protocol of GS441524 enough?

84 days is actually too long a treatment very often: most of my cases had fully recovered within about 7 to 8 weeks and some had fully recovered in as few as 4 weeks. In addition, we found that none of the FCoV-infected cats without FIP that were only treated for up to 7 days went on to develop FIP, although some of them must have had infected monocytes at the time they were treated.

Please see my papers on FIP treatment <https://www.mdpi.com/1999-4915/14/4/744/htm#>

and on FIP prevention by early treatment of FCoV-infected cats: Addie DD, Bellini F, Covell-Ritchie J, Crowe B, Curran S, Fosbery M, Hills S, Johnson E, Johnson C, Lloyd S, Jarrett O. Stopping Feline Coronavirus Shedding Prevented Feline Infectious Peritonitis. *Viruses*. 2023; 15: 818. <https://doi.org/10.3390/v15040818>

Link: <https://www.mdpi.com/1999-4915/15/4/818>

How should antiparasitic applications, vaccinations or neutering be planned for cats undergoing FCoV treatment or cats that have survived it, and when is the best time?

Excellent question: you clearly know that stress triggers FIP. FCoV-infected cats without FIP can be stressed safely as soon as they are shown to be no longer shedding virus: i.e. they have a negative faecal FCoV RT-PCR test (or antigen test if sensitive enough... I have my reservations about these tests, and also about some commercial RT-PCR tests).

For cats being treated for FIP, if you're using ivermectin as an antiparasitic, that can be given at the same time as the antivirals, because of its anti-inflammatory and anti-viral properties, as well as being antiparasitic. **IVERMECTIN SOURCE:** I use Iverhelm 3 pills for dogs from HomeLab Veterinary in the Ukraine (<https://homelabvet.com/product/ivermectin-capsules-3mg-50caps/>): if you use the code dda10xcnn you get 10% off (I do not get commission). The antiviral dose is 0.2mg per kg per day.

For vaccines, bear in mind that ABCD and AAFP recommend boosters be given only every 3 years, so for any cat who has had a full kitten course plus a booster at one year, there will usually be no rush to vaccinate. However, if the cat has not been vaccinated, one option is to test for feline panleukopenia (FPV) antibodies in case he or she is already immune and doesn't require a vaccine: FPV is the most important component of the vaccine schedule. If possible, wait until after the cat has fully recovered from FIP, with two consecutive normal acute phase protein tests, and avoid rabies or FeLV vaccines which harshly disrupt the immune system. **My choice of cat vaccines is the Purevax range** (by Merial, now owned by Boehringer) because they are safer.

The advice for neutering is pretty much the same: wait until the cat has fully recovered if possible. If for some reason waiting is not possible, one of my colleagues gets the neutering done at about week 6 of treatment, so that the cat is mostly recovered, but still has at least two weeks of antiviral to protect them from any possible increased virus replication induced by stress.

1. What is the best vaccination program with FCoV positive cats?

2. Some cats diagnosed with FIP may also be FIV/FeLV positive. Is GS treatment sufficient in this case? Is it appropriate to use feline interferon with GS? See 13.2 for my reply.

Please see my reply in the row above.

Remdesivir questions

Summary:

Please DO NOT INJECT REMDESIVIR - see the next section for further explanation - or this video:

<https://youtu.be/HBAPb071FAs>

<https://www.bitchute.com/video/J9fJKGP3vbtV/>

odysee.com/@Catvirus/PillsNotInjections

There is very little in the veterinary press about treating cats with FIP with remdesivir (and nothing at all about stopping virus shedding in faeces). I would much prefer to use GS-441524 than remdesivir because of the renotoxicity of remdesivir in humans.

A new paper by Cosaro et al, 2023 (can be downloaded free at this link: doi: 10.3390/v15081680) seems to show that remdesivir can be effective by mouth for treating FIP. The oral dose used was 25–30 mg/kg. This paper only documented 10 cats (with 120 cats excluded from the trial), therefore it was a very small study. However, we have a couple of webinar attendees who report they have used remdesivir with success (see below): thank you to those attendees for their contribution!

Concerning the treatment i'm giving remdesivir at 10mg/kg SID and i'm just saying a good prognosis for wet fip

I thank you for your question and report of your successes: I hope you will publish your case series.

It would be better to use a dose of 30mg/kg by mouth than by injection, especially in the first two weeks of treatment, to ensure you clear the brain of virus to avoid a neurological relapse, and of course to get rid of the site of main virus replication in the intestines.

Why not to use the injectable treatment, i had 30 cases of wet fip treated with remdesivir and they're doing well back to their old lifes.

I thank you for your question and report of your successes: I hope you will publish your case series.

These are my reasons for preferring oral over injection and please see the section on oral being better than injections to treat FIP and FCoV.

1. The injections are painful.
2. You're more likely to have a case relapse - can be a year after supposed "recovery."
3. Resistant viruses that GS-441524 no longer inactivates can emerge.
4. Although uncommon, you increase the risk of feline injection site sarcoma.
5. Remdesivir in humans destroyed the kidneys of many patients therefore renotoxicity worries me about its use in cats.

For cats suspected to be having FCoV, should we diagnose it with fecal rapid test and treat them with remdesivir if the test was positive?

Remdesivir would not be my first choice: use either GS-441524 pills or molnupiravir. If your only option is remdesivir, then use it by mouth, but there are no publications to establish how long such a treatment would need to be to rid the cat of the virus: perhaps you could publish one?

I do have to say that I'm also not aware of an assessment of the sensitivity of faecal rapid tests. Any time I've tried them they haven't worked well. If you've found a brand that works, would you mind please putting it as a comment on one of my YouTube videos please? Or email me: draddie@catvirus.com

➤ Injection of antiviral vs oral dosing for FIP (and FCoV diarrhoea) treatment

Summary:

Using injections to treat FIP will increase the likelihood of an FIP relapse: please watch this video for a fuller explanation: <https://youtu.be/HBAPb071FAs>
<https://www.bitchute.com/video/J9fJKGP3vbtV/>
[odysee.com/@Catvirus/ PillsNotInjections](https://odysee.com/@Catvirus/PillsNotInjections)

In addition, since the injected antiviral won't effectively penetrate the gut you increase the chance of an antiviral-resistant mutant virus emerging. Therefore using injections to treat FCoV-related diarrhoea is also not a good idea. This video explains this more fully:

<https://odysee.com/@Catvirus:3/Antiviral-resistance:e>
<https://www.bitchute.com/video/dOtZZbdxZnHo/>
<https://youtu.be/cPhSEsyg36c>

Hello, I have a 2-year-old cat with tetraplegia. The Alb/glb ratio is 0.6 from 12mg/kg to 84 days of injection gs treatment was appropriate. The clinical findings improved, but it did not fully recover. He is now walking and running but has a balance problem, from time to time. Weakness in the hind legs has decreased but continues. Should I continue the treatment? what should I do?

Thank you very much indeed for this question: it is an excellent illustration of why I am against using injections to treat cats with FIP, especially at the start of the treatment. Neurological relapses are also why one of my 10 Rules To Prevent Relapses is to begin treatment of all FIP cases with a neurological level dose of antiviral. I don't know what brand of GS you used, but 12mg/kg would probably not be sufficient (although note that many of the preparations actually contain more GS than they claim, so your dose may have been fine).

First, I would try treating again with GS-441524, but by mouth and at a dose of 20mg/kg so that you achieve blood levels of antiviral that can reach the brain (this is the equivalent of one Mutian 200 pill per kg per day). Best to give in divided doses. If the cat doesn't show improvement within about 2 weeks, then switch to molnupiravir at a dose rate of 40mg/kg per day in divided doses. Continue treatment for 12 weeks.

See the paper by Roy et al on cases like yours: <https://doi.org/10.3390/pathogens11101209>

Can we use GS injection as well for treatment corona enteritis or only per os treatment will help?

If you had absolutely no access to anything other than the injection, you could try it, but it wouldn't guarantee clearing the virus, would increase the risk of relapse, and could cause viral mutants resistant to the drugs. I would not risk it if I could help it.

This paper by Emma Cosaro shows that you can use remdesivir orally: <https://www.mdpi.com/1999-4915/15/8/1680>

Why is the oral route recommended and not the injected route to prevent relapses?

Using injections to treat FIP will increase the likelihood of an FIP relapse: please watch this video for a fuller explanation: <https://youtu.be/HBAPb071FAs>
<https://www.bitchute.com/video/J9fJKGP3vbtV/>
[odysee.com/@Catvirus/ PillsNotInjections](https://odysee.com/@Catvirus/PillsNotInjections)

Miscellaneous FIP treatment questions, supplements, immune stimulants

Is there any specific ways to prevent relaps fip for cats with fiv?

Please visit www.catvirus.com and download my 10 Rules to Prevent FIP Relapses and please subscribe to my video platforms to catch the various films explaining these rules in further detail.

You mentioned FIV specifically: it's possible that N-acetyl cysteine would help to inhibit FIV and you may also want to think about using Protexin pro-kolin enterogenic probiotics, and / or 100,000 units of Virbagen Omega daily by mouth and/or polyprenyl immunostimulant.

These will support the immune system. However, my own paper and those of others have shown a good life span for cats infected with FIV: bizarrely those cats can live longer than their FIV negative housemates.

Is there a vitamin combination you can recommend to regress neurological symptoms (nystagmus and coordination disorders) until we can reach the medicine?

Vitamins alone won't solve this problem, but there are some things you can do to tide the cat over until the antivirals arrive.

These signs suggest hydrocephalus to me and it could be that a mannose drip would give rapid (but temporary) relief to this patient.

Use meloxicam to reduce inflammation (or corticosteroids if kidney function isn't good). You could also try ivermectin at 0.2mg/kg for its anti-inflammatory and antiviral properties, which would be enhanced with zinc picolinate (from Solgar: 5mg/cat/day).

I recommend vitamin B12 (cobalamin) for all cats with FIP or FCoV infection. Supplement vitamin D by feeding the cat some liver or shrimp (but only for a few weeks: do NOT overdose). Give vitamin E. Give N-acetyl cysteine, glutathione or silymarin. Human COVID infections were helped by intravenous large doses of vitamin C: if you try that, be cautious because of the risk of causing bladder stones.

Can regular use of prebiotic and probiotic combinations prevent contamination at the intestinal stage?

I don't know if probiotics can prevent FCoV infection, but my belief is that every sick cat should be put on probiotics and prebiotics and that healthy cats will benefit from them too. We know that a varied microbiome strengthens the immune system and heals the gut.

We grew a variety of probiotic capsules at Glasgow Vet School and were horrified by what we found: candida was even present in one! However, Protexin Pro-kolin enterogenic probiotics performed best in our small, unpublished, trial. From clinical experience, my second choice brand is Fortiflora. I was delighted to learn that Protexin also make human probiotics and take them myself too.

This is an area that requires much more research. Your question was an excellent one!

Is it still safe to use monoclonal antibody treatment where antibody dependent enhancement of the macrophages takes place during FIP?

I don't know what kind of monoclonal antibodies you mean - do you mean MAbs against SARS-CoV2?

Antibody dependent enhancement (ADE) of macrophages does seem to be a laboratory-based phenomenon: my PhD studies showed that in the field cats who have survived one infection with FCoV, and therefore have naturally-acquired antibodies, were less - not more - likely to develop FIP upon re-infection. This was the exact opposite of the experiments where laboratory strains of FCoV were given to laboratory cats. Indeed my research of observing natural infections overthrew much of the so-called "knowledge" obtained by vivisection.

Monoclonal antibodies against, for example IL-6, would not cause ADE, but with the discovery of good antivirals, there would no longer be any reason to try that line of treatment.

In clinical practice lots of my colleagues uses prednisone/prednisolone to treat vasculitis. But due to virus sheds and replicates in monocytes could be helpful to suppress the immune system and induce the monocytes amounts in blood stream?

In FIP I am absolutely against using prednisolone (and prednisone doesn't really work in the cat anyway). I very much regret having ever believed it would help. As soon as I stopped using it, my case survival rate increased dramatically (see my paper: <https://www.mdpi.com/1999-4915/14/4/744/htm#>).

The best thing to help monocytes get rid of coronavirus is to supplement with arginine - which of course is available in meat. Please watch my video on this subject:

<https://odysee.com/@Catvirus:3/Lysine-FIP:2>

<https://www.bitchute.com/video/5lndb4SPOb12/>

<https://youtu.be/D4bRVuXTxRQ>

Corticosteroids should also NEVER be used in feline chronic gingivostomatitis cases.

Can we still prescribe immune booster supplement to those cats that diagnosed with FIP? Yes: I take it you mean polyprenyl immunostimulant by Sass & Sass?

🔍 FIP diagnosis: FCoV antibody tests

Summary:

There is no such thing as an FIP test: tests detect either coronavirus antibody, RNA or antigen.

FCoV antibody tests should be used mainly:

1. To RULE OUT a diagnosis of FIP or FCoV enteropathy (if negative)
 2. To screen new cats coming into a FCoV-free household
 3. To screen cats prior to a stressful procedure, such as vaccinating or neutering
- (For many more other uses of the tests, visit www.catvirus.com)

IMPORTANT MESSAGE:

A POSITIVE FCoV ANTIBODY TEST, EVEN IF VERY HIGH TITRE, IS NOT DIAGNOSTIC OF FIP.

We have a cat patient at Immuncomb S6 level. Her A/G ratio is 1. She does not show any symptoms. She only has growth retardation. She is a 1-year-old female and weighs 2 kilograms. She constantly goes into heat. And this creates stress for her. We want to neuter her, but we are afraid of triggering FIP.

Good question, thank you. I recommend that you test faeces if you can, to see if she is actively infected with FCoV, and if she is, then treat her for 7 days to stop her shedding virus: this will prevent FIP (see dosage etc. above). Remember you must also stop in-contact cats from shedding virus too, or she'll be re-infected.

If you're unable to do a FCoV RT-PCR test on her faeces, then because she has a high FCoV antibody titre, there is a 75% chance she is shedding virus, so it might be best to treat her in case she's infected because the stress of repeated oestrous and also the stress of neutering her could trigger FIP developing.

Is detecting antibodies against feline coronavirus selective for FIP or can enteric coronaviral infections also cause antibody reduces in blood?

A feline coronavirus antibody test is NEVER diagnostic of FIP, no matter what a laboratory may claim or how it names its test.

All cats infected with FCoV have antibodies, except in the first 3 to 4 weeks after infection: it takes longer to make antibodies to FCoV (i.e. to seroconvert) than with other viruses. However, only about one third of cats with FCoV antibodies shed virus.

Please see my answer below about why I do not believe the internal mutation theory for FIP development.

Could be corona AB titers 0 with AB+AG complexes and no free ABs in blood stream?

This is more likely to occur in an effusion than in the bloodstream. I haven't encountered a case of this happening in the blood, therefore it is better to use blood than effusion in any antibody tests.

When would it be best to use each diagnostic method? whether PCR, immunofluorescence or antibodies (immunocomb)? The antibody test, although it does not confirm PIF, if it comes out positive and with high antibodies, could we say that it confirms coronavirus?

Alas, no, even a high FCoV antibody titre is not indicative of active infection and definitely is not diagnostic of FIP. A high FCoV antibody titre only indicates that the cat has been exposed to FCoV and about 25% of cats with high FCoV antibody titres are no longer even shedding virus in their faeces.

The FCoV antibody test is most useful in ruling out a diagnosis of FIP, provided the test is sensitive enough, if the result is negative then I no longer consider FIP on my list of differential diagnoses (as with the **Theo case, his full case study can be watched here:**

Bitchute: <https://www.bitchute.com/video/ieNrleJ2KJeo/>

YouTube: <https://youtu.be/KmB6lu8Jg2Q>

Rumble: <https://rumble.com/v13riqd-why-did-gs-441524-not-cure-this-cat.html>

Odysee: https://odysee.com/@Catvirus:3/Theo_ascitic_cat:f

Bastyon: <https://bastyon.com/index?video=1&v=86eb544a5885a74bfacd5f-ba5b3c8d5730acfd0b84a6034a27ff7df9dd7239c>

The FCoV RT-PCR test is best used on effusions (wet FIP); mesenteric lymph node fine needle aspirates (non-effusive FIP); and faeces (for chronic enteropathy, or simply to detect virus shedding).

My YouTube channel has many examples of me working through the www.catvirus.com FIP diagnostic algorithm: please watch some for further free continuing education.

I wanna ask about diagnostic test for dry fip, because I'm still confused. if I only have 3 choice between FCOV AB, FCOV AG, and FIP AB snap test. What test I have to do for first diagnostic snap test to confirm dry FIP.

Hello! I can see that your hands are tied by the limited availability of tests. **First use the FCoV Immunocomb** to determine if FCoV antibodies are present or not. If that test is negative, FIP is very very unlikely - if in doubt, try to confirm the negative result with your FCoV SNAP test (different technology).

If the FCoV Immunocomb is positive, then work through the FIP Diagnostic Algorithm from www.catvirus.com, which is a combination of history, blood results and clinical examination to decide whether your patient has FIP or not. In dry FIP, I have ALWAYS been able to find something in the eyes - maybe a tiny area of uveitis, maybe aqueous or vitreous flaring - that tells me I'm dealing with FIP. Also I always palpate for the mesenteric lymph node which is usually enlarged in FIP. If neither of those clinical signs is present, I doubt FIP. Please subscribe to my YouTube channel to see how I work through FIP diagnosis in real cases: www.youtube.com/user/DrDianeDAddie It'll give you more confi-

As a last resort, you can see if the cat responds to an anti-coronavirus drug or not. Monitor the cat's weight: Prof. Pedersen's paper put me onto this very useful tip and I made a video about it: <https://youtu.be/UllpVk0Ys5g> A recovering cat will gain about 25g per day. Of course effusive FIP cats initially lose weight as the effusion disappears, but then they gain weight.

➤ FIP diagnosis: FCoV RT-PCR tests

Summary:

The FCoV RT-PCR test is best used on effusions (to diagnose / rule out wet FIP); mesenteric lymph node fine needle aspirates (non-effusive FIP); and faeces (for chronic enteropathy, or simply to detect virus shedding).

FCoV RT-PCR tests should not be used on blood, other than possibly at the University of Zurich laboratory.

A laboratory in Turkey says that there is a PCR test that gives 90% accurate results for FIP? What do you think about it?

If they are testing effusions and fine needle aspirates of organs, then that is believable. However, if they are testing faeces of course they would only show FCoV infection, not FIP. I would be interested to know which laboratory.

In your opinion, the presence of FCoV detected by qPCR in effusion fluid is enough to diagnose PIF?

Yes in my opinion it is diagnostic for FIP, especially if the viral titre is high. I know that it is theoretically possible for the cat to be in the transient viraemia phase and have some other condition causing an effusion and coincidentally showing up positive, but in practice I have never seen that.

For the diagnosis with PCR, is it necessary to perform sequencing to know if it is FIP and not just feline Coronavirus? Sequencing is NOT necessary: please see below.

Is a virus that causes FIP contagious, and if so - what is the mechanism? Also: why I do not believe the internal mutation theory.

Is the virus contagious if shedding in FIPV in feces?

The results of my PhD study on several hundred cats showed that wherever there was FCoV, which is very contagious, then FIP developed. Having endemic FCoV in a house is like sitting on a time bomb.

FeCoV is highly transmissible (eg, queen to kitten); on the other hand, FIPV is not considered transmissible.... yet, it does seem to occur within multiple cat household, albeit rarely. What is the mechanism/pathogenesis whereby FeCoV, during its 'transition' to FIPV, is transmissible.

You are right: FCoV is highly contagious, and where there is FCoV, sooner or later FIP usually develops (or chronic enteropathy). There have been several reports of outbreaks of FIP, therefore I have never agreed that FIP is not transmissible. One outbreak reported in a shelter was due to a type II FCoV, and possibly the novelty of the new recombinant virus was what caused there to be an outbreak, but it is more likely that the virus was being transmitted. We know that some laboratory strains of FCoV reliably induce FIP in infected cats.

I do not believe the internal mutation theory. In science, Occam's razor states that the simplest explanation is usually the one that is correct. In almost all other infectious diseases people accept that whether or not disease results in the host depends upon:

1. The dose of virus, bacterium, etc.
2. The virulence of the strain of virus
3. The health of the host
4. The immune status of the host

Why should FIP be any different?

We know without doubt that FCoV strains of varying virulence occur. In 1983 Pedersen & Black published a paper that showed clearly that at a low viral load, even of a virulent virus, only a few cats developed FIP, but virus load could be increased until nearly all the cats died.

Pedersen N.C. Black J.W. 1983. Attempted immunization of cats against feline infectious peritonitis, using avirulent live virus or sublethal amounts of virulent virus. *Am. J. Vet. Res.* 44: (2) 229-234. In attempting to cause ADE in cats vaccinated with Felocell FIP (then called Primucell), Scott et al achieved the same result (*Feline Practice*, 1995).

I plan to make a video about how all the so-called FIP specific mutations / deletions reported over the last 30 years have been debunked. My own view is that those who have shown that there are circulating FCoV strains of varying virulence are correct, and that whether or not an outbreak occurs depends upon virus load, in addition to the other 3 factors listed above. Please subscribe to my YouTube or Bitchute channels to not miss it, and to please give your own feedback: science advances by discussion, not decree.

Miscellaneous questions and comments.

Does FIP settle in the bladder? Not often.

In the diagnosis of mycoplasma hemobartonella diseases in cats, I mostly look at HCT, RBC, HG, and also PLT values in hemogram measurement with a biochemistry device. Is it enough for diagnosis? Because I don't have the means to do a microscope examination. You also said that you do not recommend BLOOD TRANSFUSION in the treatment of severe anemia in this disease. Then, would it be appropriate to start erythropoietin, dersoitin and doxycycline in every animal with severe anemia?

When I was in practice, pre-PCR days, we would stain a blood smear, using filtered stain (because precipitate can resemble haemotropic mycoplasma organisms on red blood cells). However, a negative test result is difficult to be confident about, because parasitaemia comes in waves every 7 to 10 days.

Other signs which suggest haemotropic mycoplasma infection to me includes a VERY high temperature - 104 - 105oF - and the temperature waxes and wanes at the 7-10 day interval of the parasitemia (as does the Hct / PCV). Get the cat's human to keep a diary of the cat's activity and to feel the ears - are they hot on the listless days? Palpate the abdomen - a tell-tale sign is an enlarged spleen, because of extra-medullary haemopoiesis.

Since you don't have a microscope available, then yes, I would attempt treatment with one month of doxycycline - preferably using a paste or liquid to avoid pill oesophagitis. When I had to take doxycycline for Lyme disease I found it made me vomit, so you may have to administer it after a little food. Erythropoietin is mainly used in non-regenerative anaemias and infectious anaemia is usually clearly regenerative (except for M. hemofelis, which can be rapidly fatal if not treated promptly). In Basil's case we used darbepoietin because we first thought we were simply dealing with FIP, the anaemia of which is non-regenerative, then I realised that he had two infections going on.

I've found blood transfusion in cats with FIP to be risky, but not in cats with other causes of anaemia.

In Germany breeder nearly 99% corona positiv

Yes, it's the same with breeders everywhere unfortunately, but some are beginning to eradicate FCoV from their cats thankfully. It's more difficult eradicating FCoV in larger households, and especially if kittens are present because they have much higher virus loads than adult cats do. Sheryl Curran was one of the first cat breeders to eradicate FCoV and she had a large cattery of over 20 cats, so it is possible if the breeder is really committed to it.

What test would you recommend for cats that have recurrent uveitis attacks?

Please watch my 5 part series called "Does Tommy Have FIP?" and especially Part 3 where I give a differential diagnosis of feline uveitis:

<https://youtu.be/vhZimdsSt4s>

<https://www.bitchute.com/video/mAhfbTZa0k3I/>

I also go through how I worked out which tests to do in that video: I hope you will find the answer to your question in that video. If you do not, then please email me at draddie@catvirus.com to discuss your case.

In recent years, we have started to see more lung involvement of the coronavirus in Turkey. Is there a transmission route or pathogenesis that should be taken into consideration?

I would like to know more about this: my email address is draddie@catvirus.com Do you mean FIP is presenting as pleural effusion more often? Or do you suspect cats are being infected with SARS-CoV2 virus? We do know COVID is a reverse zoonosis and obviously the transmission route would be aerosol rather than faecal-oral. Does the cats respond to GS-441524? Is it more in shelter cats? And if so, are there also dogs in those shelters? Is concurrent toxoplasmosis being ruled out?

Could a cat whose Wbc value is constantly low but does not show any symptoms be a carrier of FIP?

This doesn't sound like a coronavirus problem to me: FCoV tends to cause specifically lymphopenia, with neutrophil levels being normal or even raised. If the cat lives in an apartment, the low wbc count could simply be because he or she isn't meeting infection very often: I have seen that in indoor cats.

The virus that causes all wbc to reduce is panleukopenia: is there any indication of that?

We had a mystery outbreak of bone marrow suppression in the UK which was thought to be due to a toxin in a cat food. I do not believe the cause was ever properly established.

Is a bone marrow biopsy feasible where you live?