Moderator (Steve Dale): What did we do, we want to increase the use of -- and you'll have to explain what this is and the answers have to be reasonably short gentlemen is for the sake of time; the AGP test to help us diagnose FIP, it is widely we use and valued outside the United States.

Dr. Legendre: Well, the -- you know, I haven't really used an AGP like...

Moderator: Explain what this is.

Dr. Legendre: AGP is basically looking of proteins that identify inflammation, and I think the whole area is going to be very nonspecific, though of course, being an inflammatory disease, cats with FIP could have AGP levels that are up and we've been collecting serum samples from our cats that we'll be looking at just to see as a sidelight.

Dr. Pedersen: Yeah, and it's just another test measuring chronic immunostimulating, immuno-inflammation, and it's being powered by the Italian Group and the UK Group to a large step. It's just another test. It doesn't tell anything more than an elevated white cell count or lymphopenia and A/G ratio that's reversed, an elevated globulin, an increased fibrinogen and blah, blah, blah, you know. So it's just another one of those tests that test for chronic immune stimulating inflammation, and there are many infections that do that.

Dr. Legendre: I wouldn't say that it adds an extra 2% to the 98% for diagnosis.

Moderator: Why do you think that some cats with dry FIP put on EI end up dying from wet FIP?

Dr. Legendre: I think the transition from dry to wet is just a progression of the disease. Again, something tilts that balance where it's a deterioration process.

Dr. Pedersen: Yeah, that's exactly right because if you do follow wet FIP, most of the dry FIP has a brief wet FIP stage that will go unnoticed in most cases unless you're looking at it. So it often goes initially wet and then as you build immunity it goes dry and if it builds up strong immunity, you see nothing, and so in the end, if you have a dry FIP and your immune system collapses; remember, Al. he accurately said right at the end, it just fall apart, okay. At that time, the resistance just collapses and then you go wet right at the end and you get some fluid, but that's about it.

Moderator: Do you plan any studies using melfinavir, human interferon, and PI simultaneously and maybe chicken soup.

Dr. Legendre: I'd like to see more data because you know, that was just a comment in one of the publications from Taiwan. I just happen to be done enough with the melfinavir or whatever to say I really – I agree with Niels that interferon, what it's been looked at greatly does not show any benefit. Some of the interferon would help, I don't know, but I think certain other areas that I think show promise are some of the small interfering RNAs that are interfering with viral growth, but I'd like Niel's opinion on that.

Moderator: I know that -- I talked to Dr. Pedersen about this on the radio, in some podcast we've done, and having been there myself, I know that I wouldn't have tried the chicken soup. What do you tell people who call you in desperation, the cat really is diagnosed with effusive FIP or even suspected dry FIP and is willing to try anything? On the other hand, you hate that people spend their money. Maybe it's money that would be spent on the next cat medically -- I don't know, what do you think?

Dr. Pedersen: You tell them the truth, whatever you think and I tell them that if they want chicken soup, they can do chicken soup but I think they should try anything they want, but the truth is I always tell them that there is no effective treatment as far as I know.

Moderator: Fifty cats in a cattery are tested for coronavirus titer. All are positive except one adult. Why is the one negative?

Dr. Pedersen: The question there is backwards. It's why the 49 are not -- are positive? You know, that's a category that has enzootic corona virus, you know, and there is always titers that are first of all, you can have a titer that is falsely negative although it's a lab error. Out of 50 tests, you have one that's not working, I mean, that's within the range of that and there are cats that have low titers. They just don't make very much antibody and remember this one; the antibodies are markers of disease. They're not part of the immune -- the immune response is a little different in this disease, so the antibody is only indicators that they have been exposed, so that doesn't mean that that cat is negative and hasn't been exposed, it

isn't immune. It probably, if that's a true titer, it means it's not shedding at that time. That's what we would see but the other 49, you know...

Dr. Legendre: Yeah. And if we go ahead and compare it to HIV, I mean, there is a nice study that's done in Africa looking at prostitutes that certainly had high exposure to HIV, and a small percentage of those people that were working as a sex worker at this time as the proper terminology never became infected. So that there's obviously some individuals that for whatever reason, whether they lack the receptors on cells, they just don't get infected with that particular virus. Would surprise me to see 1 out of 50 in the cats same way.

Moderator: What can we do and I love this question and I am going to answer part of it, I'll let you answer it -- here's my answer. Please help us financially so we can when researchers -- but what we do in the Winn Foundation is we meet with submissions. Actually, our expert scientists do of folks like these two on stage saying "Please grant us money so we can do this", but we can't do that and we run out of money. One of the questions I get -- the most often as well -- why don't you? Well, it's because we only have so many funds, same for the Morris Animal Foundation, same for Cornell Feline Health Center. I suspect for SOCK FIP the same thing. Here's the question: As cat owners, what can we do to help and research other than money, if our cat is found to have FIP; DNA samples, tissue samples, what can we do?

Dr. Pedersen: Now you're going to get me mad. Because tell you something that maybe you don't want to hear. We've been pushing for years trying to get breeders -- one thing that you can simply do, just think of how simple this is. Just take a cue tip and do buccal swab two or three of them, air-dry them, stick it in a paper envelope, not a plastic bag and a little paper envelope, label it -- do this every time you wean a kitten, label the back and stick it in a drawer. You guys do that for three or four years, you'll have three generations of pedigree. So if something comes up and your breed of cat has some disease, you can go back into that thing even if you don't understand samples, the labs, or you know what, just do that, that's so simple. And now, the other thing is I had to go to Denmark to find a breed of registry that would be willing to send me hundreds of samples to do this study. I had to go to the SF SPCA to work this, you know. So basically, you guys have resources you can do, but like for instance, if we do this Birman study and come up with a genetic susceptibility marker, we're going to want to know is that genetic susceptibility marker in Siamese, is it in Maine Coons, is it in Ragdolls, is it in these other breeds as well? Where's the samples, you know? We

put out a call -- probably we've got 150 samples from total, all the other breeds and 500 from Denmark, so…

Moderator: You know, I think there used to be -- or maybe it still is and I want you to answer this question. I mean, when I said if a cat had passed away from FIP…

Moderator: Because you know, a number of them cases you can only whisper about. I mean, you think that maybe that's our problem. Maybe someone here can tell me how can you forget, but if you keep whispering, we're not going to be telling the truth and we need to do that, and what Dr. Peterson asked for seems to be perfectly reasonable. Is someone here from the Cat Fanciers Association? This should be published in the almanac and promoted in some way because I think what you're asking for is pretty simple.

Dr. Pedersen: Yeah, I think it's pretty simple too.

Moderator: I may not succeed but I'll follow on it. I will try.

Unidentified Male Speaker: Yeah, and if you have that little envelope and that cat dies of some disease later on; whatever that disease is, you can go back to that envelope and write down on that envelope, died of FIP or died of this or that, died of cancer or lymphoma or whatever.

Moderator: That would be hugely helpful for a lot of reasons, wouldn't it?

Dr. Pedersen: Oh, yeah.

Moderator: Aside from FIP…

Dr. Pedersen: Yes, yeah.

Moderator: How could we get people to do that?

Unidentified Female Speaker: Explain exactly what you want us to do, like put it in the envelope, what's that?

Moderator: She said explain exactly…

Unidentified Female Speaker: We need to know what you do on your side so we can help you on our side.

Moderator: So very specific, I'll give it for the audio here -- very specifically, what do you want them to do?

Dr. Pedersen: We have it on our website what to do but anyway, the -- all you have to do is take a Q tip, rub it a little bit on the inside the cheek of the mouth, do that for about three of those just set them aside over night and let them dry completely, stick them in a paper envelope, in a porous readable paper envelope, not in a tube, a sealed tube or a plastic Ziploc bag or anything. Don't put them in there when they're wet or they will rot, you know, so they have to be dry completely. Just sit them there and label the envelope, that's as simple as it is, that can't be anymore simpler.

Moderator: Do they have to be kittens? Do they have to be breeding cats?

Dr. Pedersen: Whatever you want, and you know, a DNA is a DNA and you can take it at birth, you could take it at weaning, you could take it at when they -- anytime. I would first go and take them when they're all wean, you know, and they're -- just take a sample. When they're old enough that you can handle handle them a little bit better, you know, a nice little swab, a cat's DNA -- their mouth has a lot of saliva, just full of DNA so they're very easy -- much easier than dogs and you don't need cytological brushes or anything like that, just a little Q tip.

Moderator: Do you want my cat and do you want adult cats also? I mean, I'll do it. I mean, also, is there a form on your website so people can say, you know, "This is from me. This is the kind of cat I have" and etcetera.

Dr. Pderesen: Well, I can't be a repository for millions of cat samples, you know, but what I would be interested is FIP, so I would be interested in breeders that have FIP problem that would give me one of three categories of cats since it's what we're asked for in the website. Category one is cats that have FIP, category two are cats that are close relative; a sibling or a parent of a cat that died of FIP, and group three cats or cats that have no relatives that you know of to the best of your ability who died of FIP. So you know, I want Persians, I want Burmese and I want all these different breeds, but I'm interested in FIP, okay?

Moderator: Okay.

Dr. Pedersen: But I'm telling you that as far as the registry is concerned, I mean, the Cat Fanciers Association; they should start this project as an independent thing and everybody has those samples then a disease can appear five years from now, three years from now, and those samples will be available to be called in. All you have to do is say "All Siamese breeders. We want these cats" okay, and you'll have them in your drawer.

Moderator: How long is that -- feline coronavirus live outside the body…

Dr. Legendre: That -- I'm not sure exactly what the survival time is because a lot of times, the coronavirus -- it depends on how clean the area is, the coronavirus will survive for a while. If it's in a stool, if it's in an area where there's been -- it's not my understanding -- a very resistant virus like you find with parvovirus, or panleukopenia virus that's very stable, so just regular cleansers which will clear it out but you're not going to go ahead if got it deposited in a bunch of stool, it could live for a while.

Moderator: A couple of weeks?

Dr. Legendre: Yeah, a couple of weeks in there.

Moderator: Does scooping more often help? And also, there was a report of certain kind of litters seem to be resistant at -- do you take any stock in that?

Dr. Legendre: I don't think -- you know, when you're scooping, you're getting the big chunks. Viruses are very tiny.

Moderator: Any comment about the litter?

Dr. Pedersen: Some litter companies are trying to do a research on litters that are antimicrobial, but you know, that's a big to do because if they're truly antimicrobial to everything, they're not going to be that healthy for cats and it's a difficult thing to do, but the scoop of the litters actually can increase your problems in time because a lot of times, the agents will build up within the litter that is left on. And as you say, and I mentioned, you scoop out the main ones yeah, but all the rest of the litter is badly contaminated, it gets more contaminated as you go on,

so sometimes, scoopable litter actually has a negative impact as far as the infectious agents are concerned.

Moderator: Has L-lysine been studied, and this is for FIP I assume and not for -- well, like in something L-lysine is used for?

Dr. Legendre: I don't think so but I would not expect any miracles there.

Moderator: Can you talk a bit about vaccination protocols and the potential of over vaccination and if that might be a stress factor for FIP?

Dr. Pedersen: I got myself into big trouble when they first FeLV vaccine came out years ago because it had a very potent adjuvant and maybe some of you can remember that those kittens will get febrile and sick for several days after they were given that vaccine. It had a very potent adjuvant and that was changed because of that, but we did see an increase in the FIP and so that's -- and I did mention that and boy I tell you I almost got sued and everything else, you know, and so -- but as far as most vaccines now, I don't see any relationship, okay. I'm totally for vaccination. Usually, first vaccine dose is around 5 to 6, usually 6 weeks of age, another one 3 or 4 weeks later, and another one around 12 or 16 weeks of age. Most of the vaccines that are good now -- I don't think cats need to be vaccinated every year of their life. That's a big controversy right now and so -- but I don't think there's a relationship to FIP.

Moderator: Stress is kind of a crazy thing because what stresses one kitten and one household, might not stress another and another household based on the individual kitten, based on maybe when a kitten is raised very, very early on and socialized, so how do you define stress?

Moderator: It is a tough crowd, isn't it?

Dr. Legendre: Before we get into stress, let me throw in a little anecdote here. Many years ago, we're working on feline leukemia virus vaccine and we've found one manufacturer's vaccine was that -- well, not significantly better than saline and they -- they were threatening to sue that -- and I talked to Niels "Nah, don't worry about it. They're not going to carry through on that" and they didn't and it was very reassuring at the time to hear it from him that nah they weren't going to look at the exposure, so that was very helpful, but looking at the stress issue, you know,

we certainly know that there's a lot of stressors but you really have to ask the cat as to what bothers you.

Dr. Pedersen: No, but it's an excellent question because they're no different than us, and if you look at everyone of you out there, some of you could take all sorts of stress and others you can hardly take any stress. So what can I say? And at some cats are the stressees and some are the stressors, just as some people.

Moderator: Why are you looking at me when you say that? You said the cats, Dr. Legendre, this is for you, you listed in your study may have been on additional therapeutics in addition to PI. Has there been any correlation with any of these additional therapeutics, kind of asked earlier, you know, maybe I think what some people are getting at, it's maybe the secret is PI seems to do something. Wow, we could find something else that does something else.

Unidentified Female Speaker: No, that wasn't the question. Was there any correlation to the length of survival from any of the cats that may have been on any of these therapies or not?

Dr. Legendre: That has not been analyzed yet. The most common thing that they were on was steroids so that they -- and that's been a mainstay of FIP control maintenance for a long time, so I would -- I doubt if that combination really had any advantage, but we have not studied the data yet. We have not looked at those that had never been on steroids versus the ones, but at a glance without analyzing the data, we don't see any reason to believe there would be.

Moderator: Tell me about the Rivalta test. Is there any diagnostic work to it? And also explain what that is.

Dr. Pedersen: The Rivalta test is very simple. It's an acetic acid, acetic acid solution. I mean, you take a drop of the abdominal fluid and you drop it in there and then it will form a precipitate if there's a lot of inflammatory proteins and protein in it and so it's a test that's used to identify a fluid as having an inflammatory nature, okay. So again, it's not a specific test, however, I can tell you -- again, if you have a young cat that has a belly full of yellow sticky fluid, yeah, you do a Rivalta test and it will form a precipitate but you already got 98% and what do you want, another -- a half percent? And so it doesn't add anything to a normal examination of that fluid, cytology, and protein and that, it's just…

Dr. Legendre: Yeah, I agree with that. I've got the Legendre test. It's kind of like the Rivalta test. You take a little fluid in your fingers and you separate it and this strings it out -- yup, that's probably analogous.

Dr. Pedersen: And that's just as good.

Dr. Legendre: To take advantage is that the Rivalta test is really cheap, the Legendre test is even cheaper.

Moderator: If you can get it-- I have two more questions here and then I will let you go for the night. How often do you think cats develop undetected dry FIP and somehow, some way, as both of you had mentioned are able to find out?

Dr. Pedersen: You know, it's real, it does happen but you have to be careful. In my lifetime, I've picked up several cats just like Ell, they've very vague signs, with enlarged mesenteric lymph nodes and has a localized lesion, and you follow it and it seems to get better and resolve. Now, I've seen a handful of those cases like that in my lifetime, but of that 6 or 7 or half of them are more -- have relapsed after 2, 3, 4 years and have developed clinical FIP later on in life. Again, supporting that idea; of some of these cats, it just cooks away at sub-clinical level for months even years before it finally pops up and finally…

Moderator: I think this is an important question. If a cat is exposed of FIP at another household, can it be brought back into its original household or should be put down.

Dr. Legendre: I think, you know, being it's not spread from cat to cat, it only goes ahead and you develop the enteric coronavirus that becomes mutated so that even if that developed FIP at another household and what you might have is that coronavirus in that household and mixed in with that first coronavirus, would that make it more likely to have a mutation? I have not a clue but I would not think it would -- so that-- but one thing that I've been wondering over night was that when I go ahead and throw that out to Niels was that we know in cheetahs that they will go ahead and get seemingly, you know, an outbreak of the FIP syndrome. I wonder -- have you done any work in that area or looked at those?

Unidentified Male Speaker: Well, the cheetah situation; cheetahs are totally inbred. They went through a bottleneck so, genetically every cheetah is virtually the same. So when there was an outbreak of FIP for the first time in a breeding

colony cheetah's at Oregon, the assumption was that it was going to march through every cheetah and kill every cheetah because every cheetah was a copy of the first cheetah, and it died out just like any coronavirus infection did because they failed to realize that there was an enteric coronavirus that got introduced into that group of cheetahs, and then it mutated and if you have developed FIP and died, then after that, it became enzootic in the cheetahs, the enteric coronavirus, and if the FIP virus had been transmitted from cheetah to cheetah, yes, they would have destroyed all the cheetahs but it didn't, so that was again another proof that FIP virus mutant is not transmitted.

Moderator: Well, I feel like the luckiest guy tonight because I got to introduce these two superstars. Please help me thank them {Standing Ovation}.