

We dip ringworm cats with Rescue/Accel. Should we go back to lime sulfur? Also, we try to get a negative PCR before putting up for adoption but some stay positive forever... could these cats be carriers?

Dr. Stuntebeck touts the virtues of Rescue (formerly Accel), lime sulfur dips, and weekly fungal cultures (DTM) in fighting ringworm. There is also discussion of the use of PCR to determine when cats are cleared of their ringworm infections.

Question:

We dip ringworm cats twice a week with Rescue™ (formerly Accel®). Should we go back to lime sulfur? Is there anything which works better/faster? Also, we try to get a negative PCR before putting up for adoption but some stay positive forever.... could these cats be carriers?

Answer:

Hello,
Thank you for taking the time to contact us with such great questions.

First of all, it is great that you are using both oral itraconazole and applying a topical treatment to the cats twice a week. We strongly recommend that shelters use an oral antifungal medication (itraconazole or terbinafine) combined with topical treatment.

To clarify, are you using Rescue™ (formerly branded as Accel®) disinfectant on the cats, or are you using the accelerated

hydrogen peroxide-based shampoo Pure Oxygen? We would very strongly discourage the use of the disinfectant product as a topical treatment. [Accelerated hydrogen peroxide \(of which Rescue is one brand\) is our favorite disinfectant](#). When diluted appropriately, accelerated hydrogen peroxide does a great job decontaminating an environment contaminated by ringworm spores, but it has not been assessed for safety or labeled for use as a topical treatment product.

With regard to the shampoo product that **is** labeled for topical use (Pure Oxygen), unfortunately, there is very little information available at this time to show that it works as well as or better than lime sulfur solution. Because of this, we strongly advise switching back to lime sulfur (LS) as your topical treatment agent. Currently, it is the most efficacious and cost-effective topical treatment option that we know of. There are other topical anti-fungal shampoos that have been shown to have reasonable efficacy, but lime sulfur is probably the least expensive, and it seems to provide the shortest times to cure. Not only is it efficient for treating individual animals, but because it is sporicidal it drastically knocks back the number of spores being shed into the environment between topical applications. LS should be diluted to a strength of 8oz lime sulfur to 1 gallon of warm water. Cats should not be pre-wetted, nor should they be rinsed after it has been applied.

We strongly recommend the use of weekly fungal cultures (dermatophyte test media - DTM) to monitor response to treatment and identify time of cure, in conjunction with occasional Woods lamp exams, rather than the use of PCR or the condition/appearance of the cats' coats. I will tell you a bit more about our thoughts on PCR below.

For cultures we use the small petri dish-style cultures because we are monitoring not only whether there is growth of fungal colonies, but how many are present (we call this a P-score). With treatment we expect the P-scores to decline over time, and define a cure as having 2 weeks in a row with negative cultures (no growth of ringworm colonies). The treatment cultures are held for 21 days; the first weekly culture without growth can be called negative at that time, while the subsequent culture can be called at 14 days. Once you have a cure as defined by culture, you can also perform an exit Woods exam to be sure the cat does not have any active (glowing) lesions. (Side note: fungal species need to be microscopically identified, both to determine the need for treatment, and because only *Microsporum canis* will

fluoresce under a Woods lamp. *Microsporum gypseum* and *Trichophyton* spp. do not glow; however we rarely find these species causing clinical disease).

We tend not to use ringworm PCR as a diagnostic tool to define cures because if even one ringworm spore is captured in your sample, your PCR test will be positive but you won't be able to know if the cat is responding to treatment. Because PCR provides no quantitative information, you cannot determine whether it was a low positive or a very high positive. In some cases, a low positive score (on fungal culture) can mean the cat's coat is contaminated by ringworm spores (which are all over the environment!) rather than truly infected. Even cultures will be positive with dust mop cats; however, if you have a low p-score (say 1 or 2 colonies of *M. canis* growing) and a cat who is negative on Woods exam, you can be confident they are not truly infected and move them along their way to adoption.

Your cats in treatment should not be staying positive forever. Cats can have low levels of spores on their coat but they are not actively infected and do not pose an infectious risk to other animals. Most likely you just managed to sample them before they had a chance to groom the spores away. We call these "dust mop" cats. It is possible that the cats you are sampling who remain positive forever are just getting spores from the environment on their coats long after their infections have cured. There is also a good chance that you aren't getting an effective topical treatment applied. We strongly recommend you switch to LS, and always recommend basing your decisions about what to do with individual animals on a combination of culture results (with P-scores) and visual + Woods exams.

I hope this has provided you with some helpful information and please let us know if we can be of further assistance!

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