



## False Positives on the *Aspergillus* Antigen Test (Platelia®) – What's the Cause?

### At a Glance – Crucial Information

1. *Aspergillus* antigen (galactomannan, GM) testing is useful for diagnosis of systemic aspergillosis.
2. Gluconate containing IV fluids and penicillin antibiotics have been reported to cause false positive results.
3. Vetivex® pHLyte™ (Dechra), an IV fluid for animal use only, contains *Aspergillus* GM and can cause a false positive result.
4. Plasmalyte® or Normosol-R® do not contain detectable *Aspergillus* GM and should not cause false positive results.

### Case Example

Crystal, a 12-year spayed female, Pomeranian presented for seizures. A caudal nasal mass invading the cribriform plate was found on MR. Nasal neoplasia was considered most likely and sinonasal *Aspergillus* (SNA) was also considered. *Aspergillus* antigen (galactomannan, GM) was detected by enzyme immunoassay (Platelia®, Bio-Rad) in urine (5.7 IU, Ref Int < 0.5). Because some of Crystal's case details (signalment, imaging findings) were not classic for SNA, and she was receiving IV fluids (Vetivex® pHLyte™, Dechra) containing gluconate at the time of sample collection, urine and serum along with a sample of the pHLyte™ was retested

2 weeks later (while she was not receiving IV fluids). At that time *Aspergillus* GM was not detected in serum or urine but high concentrations were found in the IV fluid sample (10.3 IU). A second different pHLyte™ sample also contained high concentrations of *Aspergillus* GM (8.1 IU).

### Discussion

The *Aspergillus* GM EIA is useful for supporting the diagnosis of systemic aspergillosis in dogs providing a sensitivity and specificity of approximately 90% [1]. Testing both urine and serum for *Aspergillus* antigen is recommended to maximize sensitivity. False positive test results have been suspected with non-*Aspergillus* invasive mold infections, penicillin antibiotics and gluconate-containing IV fluids. A false positive result can be detrimental if it leads to more invasive confirmatory testing, unnecessary treatment, or delays the diagnosis and treatment of the actual underlying cause.

**Vetivex® pHLyte™ (Dechra) can cause a false positive result on the *Aspergillus* GM test.**

IV fluids often contain buffers (gluconate, acetate, or lactate). Some commonly used in veterinary medicine include Plasmalyte® (Baxter), Vetivex® pHLyte™ (Dechra), and Normosol-R® (Hospira) contain sodium gluconate. Production of sodium gluconate can include fermentation of glucose by *Aspergillus* or *Penicillium* [2]. When this process is used, the sodium gluconate and thus the IV fluid, can become contaminated with fungal antigen (galactomannan, GM). This is detected by the *Aspergillus* GM EIA in blood or urine samples, potentially leading to a false positive test result.



## CLINICAL DIAGNOSIS

In the past, Plasmalyte® has been implicated in causing a false positive result on the *Aspergillus* antigen test, although more recently this has not been a concern [3]. To investigate if this was still the case, we tested samples from 5 batches (from veterinary hospitals in OK, TX, FL, and MO) and *Aspergillus* GM was not detected in any sample. In addition, *Aspergillus* GM was not detected in a sample of Normosol-R®.

**More information is needed regarding the effects of IV fluids and penicillin antibiotics on *Aspergillus* antigen testing.**

Based on this information, Vetivex® pHLyte™ should be discontinued at least 72 hours before collecting urine or blood samples for *Aspergillus* GM testing. This is not necessary for Plasmalyte® or Normosol-R®. It is important to note that not all IV fluid products have been tested. Moreover, it is possible that sources of sodium gluconate, in a given fluid type, could change. As such, further study and continued monitoring is necessary. Although many synthetic penicillin antibiotics are not a concern for causing false positive results, many penicillin antibiotics have not been directly studied. Until more information is available, it is prudent to discontinue these for at least 48 hours before collecting samples for *Aspergillus* GM testing.

### REFERENCES

1. Garcia RS, Wheat LJ, Cook AK, et al. *Sensitivity and specificity of a blood and urine galactomannan antigen assay for diagnosis of systemic aspergillosis in dogs.* J Vet Intern Med 2012;26:911-919.
2. Dowdells C, Jones RL, Matthey M, et al. *Gluconic acid production by Aspergillus terreus.* Lett Appl Microbiol 2010;51:252-257.
3. Spriet I, Lagrou K, Maertens J, et al. *Plasmalyte: No Longer a Culprit in Causing False-Positive Galactomannan Test Results.* J Clin Microbiol 2016;54:795-797.

### HEADQUARTERS

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