ENVIRONMENTAL HOME

The confusing world of mold DNA testing

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FOR TRIB TOTAL MEDIA

The science of selecting the correct type of mold testing is complicated and confusing, especially when sorting through the questions of whether a patient is sick from mold exposure or identifying the mold source.

Many of the people exposed to mold never get sick from it. For others, it can ruin their health.

Functional medical doctors often suggest initial testing in a home by using dust tests known as ERMI or HERTSMI. When you visit the blogs or Facebook group pages of mold-sensitive patients, you will find long discussions with much confusion about these dust tests.

ERMI (Environmental Relative Moldiness Index) is one test that is not often used or understood. ERMI is the product of the modern miracle of DNA technology. The EPA owns the patent on the process and limits its use to approved labs. The EPA also states that their approval of the technology is only "experimental."

HERTSMI (Health Effects Roster of Type Specific Formers of Mycotoxins and Inflammagens) is a related version of the test. For the purposes of this article, both tests are referred to as ERMI.

However, there are many studies and anecdotal evidence of the benefit of the test results for patients with chronic inflammatory respiratory disease.

There are also some very interesting, but limited, studies that high ERMI scores correlate with high lactate in the brain. High lactate correlates with cognitive problems. It's possible identifying high ERMI score conditions could be useful in treating some diseases. These are still very preliminary studies and require more research.

Let's examine the pros and cons before we talk about how this technology works.

Pros: ERMI can provide very specific specialization for target molds that can have an influence on health. ERMI can give evidence of the historic (new or old mold contaminations) mold conditions in a building. Historic evidence of long-term exposure versus short-term exposure can be useful for medical practitioners.

Cons: ERMI does not quantify all of the types of mold. It only identifies the 36 species of targeted molds originally specified in the DNA profile. There is no way to identify the age of the dust collected, making it impossible to actually know how long there was a mold issue. ERMI does not help to isolate the source of the mold contamination to aid in any required remediation or the success of a remediation.

Overview of the process

A sample of dust is taken using a specialized dirt trap. The dirt/dust/debris is collected by using a vacuum cleaner hose hooked up to a specialized air filter.

An alternative system is a smaller cassette and a standard air-sampling pump. The sample is supposed to be drawn from a roughly 2-square-yard carpet area in either a living room or bedroom.

The sample is sent to an EPA licensed lab. The lab takes the dust from the dirt trap and puts it through a

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A sample of dust taken from the testing area goes through a process to determine the DNA of mold spores. The test can determine the type of mold, but it can't identify the quantity present or the source.

filter to isolate the small, mold-sized particles. Those particles are put into a tube with a known amount of Geotrichum candidum, and the DNA is beat out of the mold spores with microscopic beads called "bead pellets."

That mush is then filtered, and the sifted genetic stuff is mixed with a buffer solution. It is then dumped into a solution called Master Mix and put through a series of temperature-controlled reactions.

If you are wondering what the technical name is for the magic chemistry we are doing, it is MSQPCR (Mold Specific Quantitative Polymerase Chain Reaction).

Remember that known quantity of Geotrichum candidum that was in the mix? That is the reference basis that can be used to compare the assays (checking process) for each of the target molds (molds that they are looking for). The checking process is done with a "sequence detector" (which is identifying DNA sequences).

After the 36 target molds are identified, the 26 in the WDB (Water Damage Building) group are measured and are compared to the common or outdoor group of 10 molds.

The reason for the look at the ratio of the two is that the exact quantity of each mold is not determined by this test. The size of a sample could be small or big, based upon the amount of dirt that was swept up.

We can't figure out by counting pieces of DNA if there is a little or a lot of mold in the building. So, we don't know how much mold is in the building from an ERMI test.

What we do know is that if most of the mold DNA is the outdoor molds, then there is less mold growing in the house. If there is a whole bunch more of the indoor mold than the exterior, then there is a lot more mold growing inside the house than coming in from the outside.

Scoring is done on a scale of -10 to 20. The higher the number, the more mold that is growing inside the house in the tested building area. That ERMI Score number is a "sort of" number, not an exact measure. It is based on a limited number of tests from a limited geographic area. Hence, it is referred to it as a "relative score."

That is what this ERMI and HERTSMI testing is about. It is amazing technology, but has a very limited application. It can't quantify mold contaminations or the success of any remediation efforts.

According to the EPA, ERMI is an "emerging technology." They further state that ERMI is still in the experimental stages and is not approved for medical diagnostic use.

Then there are Mycotox tests, such as those offered by Great Plains Laboratories, that test a patient's urine to diagnose mold toxins. That test can identify the types of mold creating a patient reaction, but not the source. So, you can see why there's confusion.

Go to Envirospect.com/ERMI for links and sources of additional information.

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