DNA FORENSIC MOLD DETECTION©

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Edward A. Sobek, Ph.D.

Extensive research conducted by the US EPA, using State-of-the-Art DNA forensics, has established the Environmental Relative Moldiness Index, otherwise known by the acronym ERMI. The ERMI study narrowed down the total number of critical mold species to 36 indoor-indicator mold species. Furthermore, the 36 species were subdivided into two very different groups of mold (fungal) species; these included the Group 1 and Group 2 molds. The Group 2 molds were found to be common in most homes and in low concentrations. Occupants living and working in indoor environments that contained predominantly Group 2 molds were healthy and suffered few respiratory related illnesses, nor did the building structures suffer leaks and water intrusion. However, Group 1 molds were much less benign, and occupants of these homes and environments suffered significant respiratory and asthma related illnesses. Moreover, Group 1 molds were significantly correlated to water intrusion due to poor construction or leaking pipes. Furthermore, EPA scientist and other reputable scientific investigators have amassed a body of published scientific research that conveys a major paradigm shift in the way mold samples are both collected and analyzed.

Currently 99% of all mold samples are collected from the air. Inspectors pump air, often for as little as 5 minutes, onto a sticky device called a spore-trap (not unlike flypaper). They send the spore trap to a lab for analysis, and the lab spits back a report, based on the shape and size of the spores they see. It is important to keep in mind, that a mold cannot be identified as belonging to a particular species using a spore trap analysis, regardless of how much training or how many degrees a spore trap analyst has. Unfortunately, many of the group 1 and group 2 mold spores are small and round and all get lumped into a common small-round spore trap grouping called Asp/Pen. Hence, neither an ERMI score nor any substantial conclusion can be drawn from spore trap analysis.

The EPA solved this problem by using good science to make major breakthroughs in both mold sampling and analysis. First, the EPA identified the best technology, to date, to identify mold. That technology is called quantitative PCR or qPCR for short. Quantitative PCR is used in many fields of science, such as genetics and cancer research. The qPCR technology directly probes the DNA of mold with 99.9% accuracy to detect which species of mold are present and how many spores of each species are contaminating the indoor environment. Secondly, the EPA used qPCR to probe the DNA of molds from the various reservoirs in homes. Surprisingly, they found air to be a poor correlate for detecting group 1 mold contamination (the water intrusion/asthma molds). So they looked elsewhere, and found that every indoor environment harbors a stable mold reservoir; that reservoir was dust. Moreover, the dust held an historical account of indoor mold. Hence, indoor dust has a historical moldy tale to tell, which is read from mold DNA. Sometimes that tale is the sorrowful account of leaky roofs, windows or pipes (the DNA identifies many group 1 mold species), other times it is a story of a happy dry home (common group 2 mold species). All buildings have dust and by analyzing the DNA in that dust for mold, all skeletons come out of the closet. And those skeletons, whether good or bad, are reflected in the EPA's ERMI index. The ERMI index is just a score based on the amounts of group 1 (water intrusion) versus group 2 molds (common). The ERMI score from DNA analysis of dust lets a building or home owner know whether their home has group 2 molds and is similar to the rest of the healthy homes identified in the EPA studies, or if it is infested by group 1 mold species, where water intrusion and respiratory problems are common.

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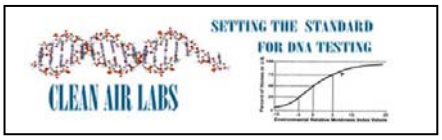

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