



## Assays PenAsp<sup>1</sup> and Stach<sup>2</sup>

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Client:	Merissa McGraw	Collected:	5/4/2011
Address of Home Tested:	228 Midway Ln	Received:	5/4/2011
	Oak Ridge, TN 37830	Reported:	5/12/2011
Assured Bio ID:	MM050511-1	Analyst:	M. McGraw, J. Wu

### Notes:

DNA analysis was performed utilizing the two assays below to detect common water damage molds.

<sup>1</sup> QPCR, a highly sensitive and specific DNA technique, was used to detect common water intrusion mold species that include species of the genus *Aspergillus*, *Penicillium* and *Paecilomyces*.

<sup>2</sup> The Stach assay detects *Stachybotrys chartarum* also known as "toxic black mold."

When sampling directly from a suspect colony of mold:

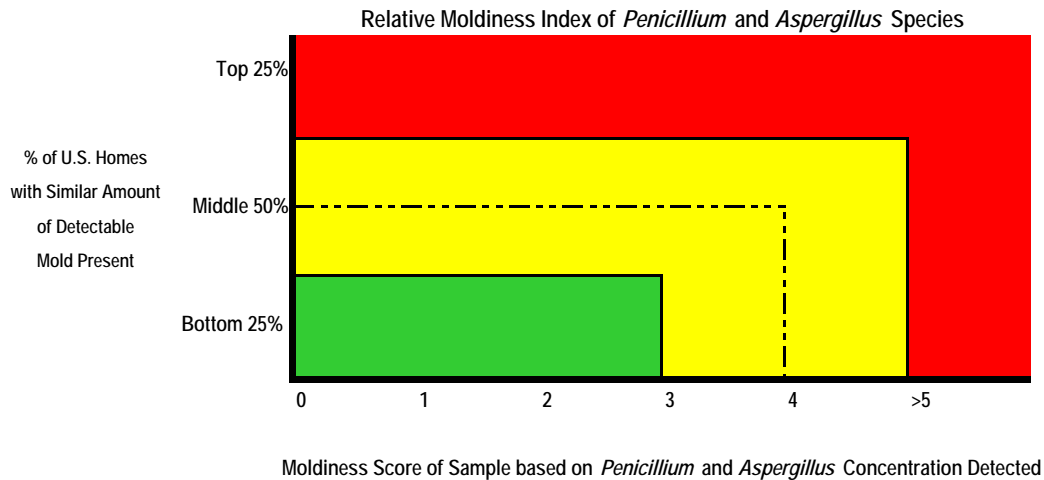
\*\*Swab/bulk samples could contain spores and hyphal fragments. This renders individual quantifications unreliable because calibrations cannot be performed for samples containing hyphae. Any quantification greater than zero should be regarded strictly as a positive result, indicating only that the species or genus was present.

### Scientific References:

- Haugland, R. A. and S. J. Vesper. 2002. Method of identifying and quantifying specific fungi and bacteria. US Patent 6,387,652 B1.
- Vesper, S. J. 2006. Developing the EPA Relative Moldiness Index® based on mold-specific quantitative PCR. *The Synergist* April 2006:39-43.
- Haugland, R. A., S. J. Vesper and L. J. Wymer. 1999. Quantitative measurement of *Stachybotrys chartarum* conidia using real-time detection of PCR products with the TaqMan™ fluorogenic probe system. *Molecular and Cellular Probes* 13:329-340.
- Meklin, T. M., R. A. Haugland, T. Reponen, M. Varma, Z. Lummus, D. Bernstein, L. J. Wymer and S. J. Vesper. 2004. Quantitative PCR analysis of house dust can reveal abnormal mold conditions. *Journal of Environmental Monitoring* 6:615-620.
- Vesper, S. J., C. McKinstry, C. Yang, R. A. Haugland, C. M. Kercksmar, I. Yike, M. D. Schluchter, H. L. Kirchner, J. Sobolewski, T. M. Alltan and D. G. Dearborn. 2006. Specific molds associated with asthma in water-damaged homes. *Journal of Occupational and Environmental Medicine* 48:852-858.

The chart below is to help interpret results:

1. *Penicillium* and *Aspergillus* values/scores are based on the EPA's Environmental Moldiness Index for these molds.
2. *Stachybotrys chartarum* is considered a highly toxic and allergenic mold. If found in your sample locating the source should be considered.




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Sample ID: MM050511-1-1

Description: Master Bedroom

<u>Assay</u>	<u>Spores / Sample</u>
PenAsp*	61,729
Stach*	1

Moldiness Score of *Penicillium* and *Aspergillus*: **4.79**

*Stachybotrys chartarum* Detected: **YES**

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Sample ID: MM050511-1-2

Description: Living Room

<u>Assay</u>	<u>Spores / Sample</u>
PenAsp*	1,302
Stach*	Below Detectable Limits

Moldiness Score of *Penicillium* and *Aspergillus*: **3.11**

*Stachybotrys chartarum* Detected: **NO**




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 Sample ID: MM050511-1-3

Description: Kitchen

<u>Assay</u>	<u>Spores / Sample</u>
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PenAsp*	133,547
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Stach*	8
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 Moldiness Score of *Penicillium* and *Aspergillus*: **5.13**
*Stachybotrys chartarum* Detected: **YES**


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Sample ID: MM050511-1-4

Description: Kid's Bedroom

<u>Assay</u>	<u>Spores / Sample</u>
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PenAsp*	27
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Stach*	Below Detectable Limits
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 Moldiness Score of *Penicillium* and *Aspergillus*: **1.44**
*Stachybotrys chartarum* Detected: **NO**


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Sample ID: MM050511-1-5

Description: Office

<u>Assay</u>	<u>Spores / Sample</u>
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PenAsp*	129
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Stach*	Below Detectable Limits
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 Moldiness Score of *Penicillium* and *Aspergillus*: **2.11**
*Stachybotrys chartarum* Detected: **NO**


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 Sample ID: MM050511-1-6

Description: Bath

<u>Assay</u>	<u>Spores / Sample</u>
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PenAsp*	29,625,891
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Stach*	890
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 Moldiness Score of *Penicillium* and *Aspergillus*: **7.47**
*Stachybotrys chartarum* Detected: **YES**


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Sample ID: MM050511-1-7

Description: Hallway

<u>Assay</u>	<u>Spores / Sample</u>
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PenAsp*	602
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Stach*	15
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 Moldiness Score of *Penicillium* and *Aspergillus*: **2.78**
*Stachybotrys chartarum* Detected: **YES**


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Sample ID: MM050511-1-8

Description: Laundry Room

<u>Assay</u>	<u>Spores / Sample</u>
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PenAsp*	2,818
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Stach*	Below Detectable Limits
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 Moldiness Score of *Penicillium* and *Aspergillus*: **3.45**
*Stachybotrys chartarum* Detected: **NO**


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