

Company:
Project Name: Sample Report
Address: ,
Sample Type: Cotton Swab

Accession #:

Collected:
Received:
Completed:

Procedure Type:

Quantitative PCR (Polymerase Chain Reaction)

Code	Test	Value (Fungal Elements / ML)
AALT	<i>Alternaria alternata</i>	2,094
AFLAV	<i>Aspergillus flavus</i>	0
AFUMI	<i>Aspergillus fumigatus</i>	0
ANIG	<i>Aspergillus niger</i>	26,343
AOCHR	<i>Aspergillus ochraceus</i>	0
APENI	<i>Aspergillus penicillioides</i>	2,058
ASP25	<i>Aspergillus terreus</i>	4,715
AVERS	<i>Aspergillus versicolor</i>	0
CAU	<i>Candida auris</i>	0
CGLOB	<i>Chaetomium globosum</i>	0
FUS14	<i>Fusarium solani</i>	0
PBREV	<i>Penicillium brevicompactum</i>	4,895
PCHRY	<i>Penicillium chrysogenum</i>	964,000,000
STAC	<i>Stachybotrys chartarum</i>	0
WSEBI	<i>Wallemia sebi</i>	1,823

MOLD	MYCOTOXIN PRODUCED	POTENTIAL HEALTH ISSUES
<i>Alternaria alternata</i>	Alternariol	Spores can be found in damp, poorly ventilated homes, contributing to sick building syndrome [1]. Alternariol has been reported to be mutagenic [2].
<i>Aspergillus flavus</i>	Gliotoxin, Aflatoxin	<i>A. flavus</i> is the second leading cause of invasive aspergillosis in immunocompromised patients. Particularly common clinical syndromes associated with <i>A. flavus</i> include: chronic granulomatous sinusitis, keratitis, cutaneous aspergillosis, wound infections and osteomyelitis following trauma and inoculation [3, 4]. Can cause liver cancer in humans [5].
<i>Aspergillus fumigatus</i>	Gliotoxin, Aflatoxin	<i>A. fumigatus</i> is frequently found in homes and buildings [1]. It is considered to be an opportunistic pathogen, meaning it rarely infects healthy individuals, but is the leading cause of invasive aspergillosis (IA) in immunocompromised individuals such as cancer, HIV or transplant patients [2].
<i>Aspergillus niger</i>	Ochratoxin, Gliotoxin	<i>A. niger</i> produces gliotoxin, which has been identified in the sera of humans and mice with aspergillosis. Causes immunosuppression in patients [8].
<i>Aspergillus ochraceus</i>	Ochratoxin	Ochratoxin has been demonstrated to be Nephrotoxic, Hepatotoxic, and Carcinogenic and is a potent teratogen and immune-suppressant [8]. It has also been associated with urinary tract infections and bladder cancer [9].
<i>Aspergillus penicillioides</i>	Unknown	<i>A. penicillioides</i> is commonly found indoors [10]. Infection has been confirmed in pulmonary aspergillosis [11] and fungal aneurysm [12].
<i>Aspergillus terreus</i>	Gliotoxin, Citirin	Inhalation of fungal spores, which travel down along the respiratory tract, cause the typical respiratory infection [6].
<i>Aspergillus versicolor</i>	Sterigmatocystin	<i>A. versicolor</i> is one of the most frequently found molds in water-damaged buildings. <i>A. versicolor</i> is known to produce a mycotoxin called sterigmatocystin a potentially carcinogenic and hepatotoxic mycotoxin. It is primarily toxic to the liver and kidneys [7].
<i>Candida auris</i>	Unknown	<i>C. auris</i> can be found in healthcare facilities and can be spread through contact with infected patients and equipment. <i>C. auris</i> can cause blood stream infections, wound infections and ear infections [13].
<i>Chaetomium globosum</i>	Chaetoglobosins	<i>C. globosum</i> is a common indoor fungal contaminant of water damaged homes or buildings. Like <i>Stachybotrys</i> , <i>C. globosum</i> spores are relatively large and due to their mode of release are not as easily airborne as are some other molds [11].
<i>Fusarium species</i>	Fumonisin; Zearalenone	<i>Fusarium</i> can cause superficial infections such as keratitis or onychomycosis in healthy individuals and disseminated infections in immunocompromised patients [12].
<i>Penicillium brevicompactum</i>	Ochratoxin A	Producer of the toxin Ochratoxin A. Fungal particles depend on the relative humidity [14]. Can lead to chronic Rhinosinusitis if breathed in high concentrations [15].
<i>Penicillium chrysogenum</i>	Ochratoxin A	Producer of the toxin Ochratoxin A. Fungal particles depend on the relative humidity [14]. Can lead to chronic Rhinosinusitis if breathed in high concentrations [16]. High levels are correlated with the development of sick building syndrome [17].
<i>Stachybotrys chartarum</i>	Macrocytic Trichothecenes	<i>S. chartarum</i> , commonly known as black mold, is highly toxic to humans. Nausea, vomiting, diarrhea, burning erythema, ataxia, chills, fever, hypotension, hair loss and confusion are symptoms in individuals living or working inside <i>Stachybotrys</i> infested homes and buildings [10].
<i>Wallemia sebi</i>	Walleminol	Spores from <i>Wallemia</i> are significant allergens. Inhalation exposure of spores can lead to conditions such as asthma, hypersensitivity, or pulmonary fibrosis [23].

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Test	Result	Value (ppb)	Reference Range
Glutotoxin Derivative	Equivocal	0.600	Not Present <0.5 Equivocal 0.5 - <1 Present >=1
Trichothecene Group (Macrocyclic):	Not Present	0.060	Not Present <0.07 Equivocal 0.07 - <0.09 Present >=0.09
Roridin A			
Roridin E			
Roridin H			
Roridin L-2			
Verrucarin A			
Verrucarin J			
Satratoxin G			
Satratoxin H			
Isosatratoxin F			
Aflatoxin Group:	Equivocal	0.900	Not Present <0.8 Equivocal 0.8 - <1 Present >=1
Aflatoxin B1			
Aflatoxin B2			
Aflatoxin G1			
Aflatoxin G2			
Ochratoxin A	Equivocal	1.900	Not Present <1.8 Equivocal 1.8 - <2 Present >=2
Zearalenone	Equivocal	0.600	Not Present <0.5 Equivocal 0.5 - <0.7 Present >=0.7

Released By: Wendy Watson, MLS(ASCP), M, MB, Technical Supervisor

RTL maintains liability limited to cost of analysis. Interpretation of the data contained in this report is the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by RTL. The above test report relates only to the items tested. RTL bears no responsibility for sample collection activities or analytical method limitations.

Mycotoxin	Cellular Activity of Mycotoxin	Symptoms/Other	Association with a "Disease State"
A FLA TOXIN FAMILY			
Organisms: <i>Aspergillus flavus</i>, <i>Aspergillus oryzae</i>, <i>Aspergillus fumigatus</i>, <i>Aspergillus parasiticus</i> Aflatoxins have been associated with liver cancer [2,3], cirrhosis [4,5], and other health issues			
1	Aflatoxin B1	Binds DNA and proteins [6,7]	Shortness of breath [8], weight loss [10], most potent and highly carcinogenic.
2	Aflatoxin B2	Inhibits DNA and RNA replication [12]	Impaired fetal growth [13,14]
3	Aflatoxin G1	Cytotoxic, induces apoptosis in cells, DNA damage [1]	A flavus is a leading cause of invasive aspergillus in immunocompromised patients [15]
4	Aflatoxin G2	Cancer, neonatal jaundice [2,3,16]	Aflatoxicosis in humans and animals [15]
OCHRATOXIN A			
Organisms: <i>Aspergillus ochraceus</i>, <i>Aspergillus niger</i>, <i>Penicillium species</i>			
5	Ochratoxin A	Inhibits mitochondrial ATP, potent teratogen, and immune suppressor [17-19]	Fatigue, dermatitis, irritated bowel [20-22]
MA CROCYCLIC TRICHOHECENES (Group D)			
Organism: <i>Stachybotrys chartarum</i>			
6	Satratoxin G	DNA, RNA, and protein synthesis inhibition [25]	Fatigue [26]
7	Satratoxin H	Inhibits protein synthesis [25]	Fatigue [26]
8	Isosatratoxin F	Immunosuppression [30]	Weakened immune system [30]
9	Roridin A	Immunosuppression [30]	Weakened immune system [30]
10	Roridin E	DNA, RNA, and protein synthesis disruption [25,32]	Weakened immune system [30]
11	Roridin H	Inhibits protein synthesis [25]	Weakened immune system [30]
12	Roridin L-2	Immunosuppression [30]	Weakened immune system [30]
13	Verrucaric acid	Immunosuppression [30]	
14	Verrucaric acid	Immunosuppression [30]	
GLIOTOXIN DERIVATIVE			
Organisms: <i>Aspergillus fumigatus</i>, <i>Aspergillus terreus</i>, <i>Aspergillus niger</i>, <i>Aspergillus flavus</i>			
15	Gliotoxin	Attacks intracellular function in immune system [34]	Memory and breathing issues [35,36]
ZEARALENONE			
Organisms: <i>Fusarium species</i>			
16	Zearalenone	Estrogen mimic [37,38]	Early puberty, low sperm counts, cancer [39-42]

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Sample Type: Urine

COLOR KEY:

NOT PRESENT EQUIVOCAL PRESENT

(PPB: Parts Per Billion)

Ochratoxin	Result	Value and Reference Range
Ochratoxin A	Present	<1.8 1.8 - <2 2 - <70 2.814 PPB

Aflatoxin	Result	Value and Reference Range
Aflatoxin Group:	Equivocal	<0.8 0.8 - <1 1 - <56 0.976 PPB
Aflatoxin B1		
Aflatoxin B2		
Aflatoxin G1		
Aflatoxin G2		

Trichothecene	Result	Value and Reference Range
Trichothecene Group (Macrocyclic):	Present	<0.07 0.07 - <0.09 0.09 - <2.4 0.115 PPB
Roridin A		
Roridin E		
Roridin H		
Roridin L-2		
Verrucarin A		
Verrucarin J		
Satratoxin G		
Satratoxin H		
Isosatratoxin F		

Gliotoxin	Result	Value and Reference Range
Gliotoxin Derivative	Equivocal	<0.5 0.5 - <1 1 - <50 0.694 PPB

Zearalenone	Result	Value and Reference Range
Zearalenone	Not Present	<0.5 0.5 - <0.7 0.7 - <11.2 0.180 PPB

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Sample Type: Urine

Test	Result	Value (ppb)	Reference Range
Ochratoxin A	Present	2.814	Not Present <1.8 Equivocal 1.8 - <2 Present >=2
Aflatoxin Group: Aflatoxin B1 Aflatoxin B2 Aflatoxin G1 Aflatoxin G2	Equivocal	0.976	Not Present <0.8 Equivocal 0.8 - <1 Present >=1
Trichothecene Group (Macrocyclic): Roridin A Roridin E Roridin H Roridin L-2 Verrucarin A Verrucarin J Satratoxin G Satratoxin H Isosatratoxin F	Present	0.115	Not Present <0.07 Equivocal 0.07 - <0.09 Present >=0.09
Gliotoxin Derivative	Equivocal	0.694	Not Present <0.5 Equivocal 0.5 - <1 Present >=1
Zearalenone	Not Present	0.180	Not Present <0.5 Equivocal 0.5 - <0.7 Present >=0.7

Released By: Wendy Watson, MLS(ASCP), M, MB, Technical Supervisor

About These Tests:

Test results should be evaluated in relation to symptoms, clinical history, and other laboratory findings. Individuals should review their results with a healthcare provider.

These tests were developed and the performance characteristics determined by RealTime Laboratories. They have not been cleared or approved by the U.S. Food and Drug Administration (FDA). This laboratory is certified under the Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high complexity clinical laboratory testing. The New York State (NYS) Department of Health (DOH) has allowed these tests to be offered in the NYS under the current RealTime Laboratories permit. The NYS DOH has not evaluated any test claims nor reviewed the accuracy of these tests.

Mycotoxin	Cellular Activity of Mycotoxin	Symptoms/Other	Association with a "Disease State"
A FLA TOXIN FAMILY			
Organisms: <i>Aspergillus flavus</i>, <i>Aspergillus oryzae</i>, <i>Aspergillus fumigatus</i>, <i>Aspergillus parasiticus</i> Aflatoxins have been associated with liver cancer [2,3], cirrhosis [4,5], and other health issues			
1	Aflatoxin B1	Binds DNA and proteins [6,7]	Shortness of breath [8], weight loss [10], most potent and highly carcinogenic.
2	Aflatoxin B2	Inhibits DNA and RNA replication [12]	Impaired fetal growth [13,14]
3	Aflatoxin G1	Cytotoxic, induces apoptosis in cells, DNA damage [1]	A flavus is a leading cause of invasive aspergillus in immunocompromised patients [15]
4	Aflatoxin G2	Cancer, neonatal jaundice [2,3,16]	Aflatoxicosis in humans and animals [15]
OCHRATOXIN A			
Organisms: <i>Aspergillus ochraceus</i>, <i>Aspergillus niger</i>, <i>Penicillium species</i>			
5	Ochratoxin A	Inhibits mitochondrial ATP, potent teratogen, and immune suppressor [17-19]	Fatigue, dermatitis, irritated bowel [20-22]
MA CROCYCLIC TRICHOHECENES (Group D)			
Organism: <i>Stachybotrys chartarum</i>			
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7	Satratoxin H	Inhibits protein synthesis [25]	Fatigue [26]
8	Isosatratoxin F	Immunosuppression [30]	Weakened immune system [30]
9	Roridin A	Immunosuppression [30]	Weakened immune system [30]
10	Roridin E	DNA, RNA, and protein synthesis disruption [25,32]	Weakened immune system [30]
11	Roridin H	Inhibits protein synthesis [25]	Weakened immune system [30]
12	Roridin L-2	Immunosuppression [30]	Weakened immune system [30]
13	Verrucaridin A	Immunosuppression [30]	
14	Verrucaridin J	Immunosuppression [30]	
GLIOTOXIN DERIVATIVE			
Organisms: <i>Aspergillus fumigatus</i>, <i>Aspergillus terreus</i>, <i>Aspergillus niger</i>, <i>Aspergillus flavus</i>			
15	Gliotoxin	Attacks intracellular function in immune system [34]	Memory and breathing issues [35,36]
ZEARALENONE			
Organisms: <i>Fusarium species</i>			
16	Zearalenone	Estrogen mimic [37,38]	Early puberty, low sperm counts, cancer [39-42]

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SYMPTOMS OF Mycotoxins

