

## BRIEF EXPLANATION GUIDE ON ENVIRONMENTAL MOLD PANEL TESTING

MOLD	MYCOTOXIN PRODUCED	POTENTIAL HEALTH ISSUES
<i>Aspergillus fumigatus</i>	Gliotoxin, Aflatoxin	<i>A. fumigatus</i> is frequently found in homes and buildings. 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.
<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. Can cause liver cancer in humans
<i>Aspergillus terreus</i>	Gliotoxin, Citrin	Inhalation of fungal spores, which travel down along the respiratory tract, cause the typical respiratory infection.
<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.
<i>Aspergillus ochraceus</i>	Ochratoxin	Ochratoxin has been demonstrated to be Nephrotoxic, Hepatotoxic, and Carcinogenic and is a potent teratogen and immune-suppressant. It has also been associated with urinary tract infections and bladder cancers.
<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.
<i>Stachybotrys chartarum</i>	Macrocylic 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.
<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.
<i>Fusarium species</i>	Fumonisin; Zearalanone	<i>Fusarium</i> can cause superficial infections such as keratitis or onychomycosis in healthy individuals and disseminated infections in immunocompromised patients.
<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's. <i>C.auris</i> can cause blood stream infections, wound infections and ear infections.

For any further question on the test report please schedule a consult with our medical staff at [www.realtimelab.com](http://www.realtimelab.com)

## BRIEF EXPLANATION ON MYCOTOXIN PANEL

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	Mycotoxin	Cellular activity of Mycotoxin	Symptoms/Others	Association with a "Disease State"
<b>AFLATOXIN FAMILY</b> —Organisms: <i>Aspergillus flavus</i> , <i>Aspergillus oryzae</i> , <i>Aspergillus fumigatus</i> , <i>Aspergillus parasiticus</i> Aflatoxins have been linked to liver cancer, hepatitis, cirrhosis, and other health issues				
1	<b>B1</b>	Binds DNA and proteins	Shortness of breath, weight loss, most potent and highly carcinogenic.	Primarily attacks the liver, other organs include kidneys and lungs.
2	<b>B2</b>	Inhibits DNA, RNA, and protein metabolism	Enters the body through the lungs, mucous membranes (nose and mouth), or the skin.	Affects the liver and kidneys. Less potent than B1. The order of toxicity is B1 greater than G1, greater than G2, greater than B2.
3	<b>G1</b>	Adversely affects the immune system	<i>A. flavus</i> second leading cause of invasive aspergillosis in immunocompromised patients.	Cancer, chronic hepatitis, and jaundice. Reye's Syndrome.
4	<b>G2</b>	Immunosuppression	Mitochondrial damage. Aflatoxicosis in Humans and Animals.	Hepatitis, malnutrition, lung cancer.
<b>OCHRATOXIN A</b> —Organisms: <i>Aspergillus ochraceus</i> , <i>Aspergillus niger</i> , and <i>Penicillium</i> species				
5	<b>Ochratoxin A</b>	Interferes with cellular physiology, inhibits mitochondrial ATP production, and stimulates lipid peroxidation	A potent teratogen and immune---- suppressant. 30----day ½ life in blood; indefinite existence intra----cellular.	Kidney disease, cancer, infection of bladder, Nephrotoxic, Hepatotoxic.
<b>TRICHOPECENE FAMILY (MACROCYCLIC)</b> —Group D Organism: <i>Stachybotrys chartarum</i>				
6	<b>Satratoxin G</b>	DNA, RNA and protein synthesis, intracellular	Bleeding disorders, central nervous and peripheral nerve disorders. Most potent inhibitors of protein synthesis.	Wide range of GI problems, skin inflammation, vomiting and damage to blood producing cells. Highly <b>toxicogenic</b>
7	<b>Satratoxin H</b>	Inhibits protein synthesis	Found in damp or water----damaged environment.	Vision problems, GI problems, breathing issues.
8	<b>Isosatratoxin F</b>	Immunosuppression	Causes of health problems due to poor air quality.	Contributor to "sick building syndrome"
9	<b>Roridin A</b>	Nasal inflammation, excess mucus secretion, and damage to the olfactory system	Acute and chronic respiratory tract health problems.	Acute and chronic lung and nasal problems.
10	<b>Roridin E</b>	Disrupt the synthesis of DNA, RNA, and protein	Roridin E grows in moist indoor environments.	Can impact every cell in the body.
11	<b>Roridin H</b>	Inhibits protein synthesis	Grows well on many building materials subject to damp conditions.	Lymphoid necrosis and dysregulation of IgA production.
12	<b>Roridin L-2</b>	Immunosuppression	Grows on wood----fiber, boards, ceiling tiles, water----damaged gypsum board, and HVAC ducts.	Easily airborne and inhaled by occupants of an infected building.
13	<b>Verrucaridin A</b>	Immunosuppression, nausea, vomiting, weight loss	Found mostly in damp environments.	One of the most toxic trichothecenes.
14	<b>Verrucaridin J</b>	Can easily cross cell membranes	Absorbed through the mouth and the skin.	Small enough to be airborne and easily inhaled.
<b>GLIOTOXIN DERIVATIVE</b> —Organisms: <i>Aspergillus fumigatus</i> , <i>Aspergillus terreus</i> , <i>Aspergillus niger</i> , <i>Aspergillus flavus</i>				
15	<b>Gliotoxin</b>	Attacks intracellular function in immune system	Lung disorders, brain dysfunction, bone marrow dysfunction.	Immune dysfunction disorders. Aspergillosis, association with tumors of brain, lung.
<b>Zearalenone</b> —Organisms: <i>Fusarium graminearum</i> , <i>Fusarium culmorum</i> , <i>Fusarium cerealis</i> , <i>Fusarium equiseti</i> , <i>Fusarium verticillioides</i> , <i>Fusarium incarnatum</i>				
16	<b>Zearalenone</b>	Estrogen mimic	Enters the body through the lungs, mucous membranes, or the skin	Can lead to reproductive issues such as low sperm count, inability to ovulate, spontaneous abortions. May lead to early puberty in girls.

References : <https://realtimelab.com/gliotoxin/>; <https://realtimelab.com/aflatoxins/>; <https://realtimelab.com/trichothecenes/>; <https://realtimelab.com/ochratoxins/>; <https://realtimelab.com/molds/>