The Great Plains Laboratory, Inc.

William Shaw, Ph.D Director | 11813 W. 77th Street, Lenexa, KS 66214 | (913) 341-8949 | Fax (913) 341-6207

Requisition #:	972427	**Physician Name:**	ALEXANDRA MIDDLETON
Patient Name:	Jennifer Caspari	**Date of Collection:**	Aug 18, 2021
Date of Birth:	Mar 30, 1983	**Time of Collection:**	08:00 AM
Gender:	F	**Print Date:**	Sep 16, 2021
Specimen Id.:	972427-2		

Mycotox Profile

Creatinine Value: **211.55 mg/dl**

Metabolite	Results (ng/g creatinine)	Normal Range *	Abnormal Range
Aspergillus			
Aflatoxin-M1	0.00	< 0.5	▲ 0.5
Ochratoxin A	18.15	< 7.5	▲ 7.5
Gliotoxin	0.00	< 200	▲ 200
Penicillium			
Sterigmatocystin	0.00	< 0.4	▲ 0.4
Mycophenolic Acid	0.00	< 37.4	▲ 37.4

**** The normal range was calculated using the median + 2 times the standard deviation***

Testing performed by The Great Plains Laboratory, Inc., Lenexa, Kansas. The Great Plains Laboratory has developed and determined the performance characteristics of this test. The test has not been evaluated by the U.S. Food and Drug Administration. The FDA does not currently regulate such testing.

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Mycotox Profile

Metabolite	Results (ng/g creatinine)	Normal Range *	Abnormal Range
Stachybotrys			
Roridin E	3.33	< 0.2	▲ 0.2
Verrucarin A	0.00	< 1.3	▲ 1.3
Fusarium			
Enniatin B	1.77	< 0.3	▲ 0.3
Zearalenone	0.00	< 3.2	▲ 3.2
Chaetomium globosum			

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Chaetoglobosin A	**0.00**	**< 10**	▲ 10

Multiple Mold Species

Citrinin (Dihydrocitrinone DHC)	**< 25.00**	**< 25**	▲ 25

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Ochratoxin: Ochratoxin A (OTA) is a nephrotoxic, immunotoxic, and carcinogenic mycotoxin. This chemical is produced by molds in the Aspergillus and Penicillium families. Exposure is done primarily through water damaged buildings. Minimal exposure can occur through contaminated foods such as cereals, grape juices, dairy, spices, wine, dried vine fruit, and coffee. Exposure to OTA can also come from inhalation exposure in water-damaged buildings. OTA can lead to kidney disease and adverse neurological effects. Studies have shown that OTA can lead to significant oxidative damage to multiple brain regions and is highly nephrotoxic. Dopamine levels in the brain of mice have been shown to be decreased after exposure to OTA. Some studies have hypothesized that OTA may contribute to the development of neurodegenerative diseases such as Alzheimer's and Parkinson's. Treatment should be aimed at removing the source of exposure. Agents such as oral cholestyramine, charcoal, and phenylalanine can help prevent the absorption of these toxins from food. Antioxidants such as vitamins A, E, C, NAC, rosmarinic acid, and liposomal glutathione alone or in combination have been shown to mitigate the oxidative effects of the toxin. Bentonite or zeolite clay is reported to reduce the absorption of multiple mycotoxins found in food, including OTA. Studies have also shown that OTA is present in sweat, which supports the use of sauna as a treatment to increase the excretion of OTA. Retesting is recommended after 3-6 months of treatment.

(PMID 17195275, 16293235, 27521635, 22069626, 24792326, 22253638, 16140385, 2467220, 16844142, 19148691, 22069658, 16019795, 18286403, 15781206, 11439224, 17092826, 32710148)

Roridin E: Roridin E (ROE) is a macrocyclic trichothecene produced by the mold species Fusarium, Myrothecium, and Stachybotrys (i.e. black mold). Trichothecenes are frequently found in buildings with water damage but can also be found in contaminated grain. This is a very toxic compound, which inhibits protein biosynthesis by preventing peptidyl transferase activity. Trichothecenes are considered extremely toxic and have been used as biological warfare agents. Even low levels of exposure to macrocyclic trichothecenes can cause severe neurological damage, immunosuppression, endocrine disruption, cardiovascular problems, and gastrointestinal distress. Treatment measures are often aimed at the prevention of their absorption. Nebulized and intranasal glutathione is beneficial for those exposed to inhaled toxin. Transdermal and liposomal glutathione may also be helpful, especially in combination with sequestrants. Sequestrants bind to toxins in the GI tract making them unavailable for reabsorption. Retesting is recommended after 3-6 months of treatment.

(PMID: 18007011, 23710148, 15342078, 19333439, 20549560, 3376149)

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Enniatin B: Enniatin B (ENB) is a fungal metabolite categorized as cyclohexa depsipeptides toxin produced by the fungus Fusarium. The main cause of exposure is from water damaged buildings, although this strain of fungus is one of the most common cereal contaminants. Grains in many different countries have recently been contaminated with high levels of enniatins. The toxic effects of Enniatin are caused by the inhibition of the acyl-CoA cholesterol acyltransferase, depolarization of mitochondria, and inhibition of osteoclastic bone resorption. Enniatin has antibiotic properties and chronic exposure may lead to weight loss, fatigue, and liver disease. Sequestrants bind to mycotoxins in the GI tract making them unavailable for reabsorption. These agents are not absorbed and work best for patients with GI symptoms or those whose toxin exposure is coming from food. Retesting is recommended after 3-6 months of treatment.

(PMID: 18274964, 16730043, 21622627, 23710148)