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 #:	9800559	**Physician Name:**	NO PHYSICIAN
Patient Name:	Sample	**Date of Collection:**	Jul 21, 2019
Date of Birth:	Jun 25, 2000	**Time of Collection:**	07:45 AM
Gender:	M	**Print Date:**	Aug 8, 2019

Mycotox Profile

Creatinine Value: **136.37 mg/dl**

Metabolite	Results (ng/g creatinine)	Normal Range	Abnormal Range
Aspergillus			
Aflatoxin-M1	2.53	< 0.5	▲ 0.5
Ochratoxin A	13.08	< 7.5	▲ 7.5
Gliotoxin	< 200.00	< 200	▲ 200
Penicillum			
Sterigmatocystin	0.00	< 0.4	▲ 0.4
Mycophenolic Acid	0.00	< 37.4	▲ 37.4
Stachybotrys			
Roridin E	0.00	< 0.2	▲ 0.2
Verrucarin A	0.00	< 1.4	▲ 1.4

**** 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.

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 #:	9800559	**Physician Name:**	NO PHYSICIAN
Patient Name:	Sample	**Date of Collection:**	Jul 21, 2019
Date of Birth:	Jun 25, 2000	**Time of Collection:**	07:45 AM
Gender:	M	**Print Date:**	Aug 8, 2019

Mycotox Profile

Metabolite	Results (ng/g creatinine)	Normal Range	Abnormal Range
Fusarium			
Enniatin B	0.00	< 0.3	▲ 0.3
Zearalenone	0.00	< 3.2	▲ 3.2
Chaetomium globosum			
Chaetoglobosin A	0.00	< 10	▲ 10
Multiple Mold Species			
Citrinin	< 25.00	< 25	▲ 25

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

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 #:	9800559	**Physician Name:**	NO PHYSICIAN
Patient Name:	Sample	**Date of Collection:**	Jul 21, 2019
Date of Birth:	Jun 25, 2000	**Time of Collection:**	07:45 AM
Gender:	M	**Print Date:**	Aug 8, 2019

Interpretations

Aflatoxin M1: Aflatoxin M1 (AFM1) is the main metabolite of aflatoxin B1, which is a mycotoxin produced by the mold species Aspergillus. Aflatoxins are some of the most carcinogenic substances in the environment. Aflatoxin susceptibility is dependent on multiple different factors such as age, sex, and diet. Aflatoxin's may source is water damage in buildings. Aflatoxin can also be found in beans, corn, rice, tree nuts, wheat, milk, eggs, and meat. Aflatoxin can lead to liver damage, cancer, mental impairment, abdominal pain, hemorrhaging, coma, and death. Aflatoxin has been shown to inhibit leucocyte proliferation. Clinical signs of aflatoxicosis are non-pruritic macular rash, headache, gastrointestinal dysfunction (often extreme), lower extremity edema, anemia, and jaundice. Treatment should include fluid support to prevent dehydration. The toxicity of Aflatoxin is increased in the presence of Ochratoxin and Zearalenone. Aflatoxin is removed through the glutathione S-transferase system. This system can conjugate activated aflatoxin with reduced glutathione. This leads to aflatoxin becoming more water soluble, which assists in its excretion. It is theorized that variations in levels of P450s, glutathione transferase, and transporters can account for the variation in response patients have to aflatoxin exposure. (PMID: 11724948, 12628519, 27017951, 26596546, 15027811, 15531656, 12573908, 20381597, 27470613, 18286403, 10050868, 7585637, 16762476, 16019795, 18286403)

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. (PMID 17195275, 16621780, 16293235, 27521635, 22069626, 24792326, 22253638, 16140385, 2467220, 16844142, 19148691, 22069658, 16019795, 18286403, 15781206, 11439224, 17092826, 32710148)