

Final Report Date:	12-02-2019 10:45	Specimen Collected:	11-30-2015
Accession ID:	1512010000	Specimen Received:	12-01-2015 00:00

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

PATIENT

Name: PATIENT TESTNAME
 Date of Birth: 1961-01-20
 Gender: Male
 Age: 58
 Height: 5'9" Weight: 160 lbs
 Telephone #: test@vibrantsci.com
 Street Address: 1021 HOWARD AVENUE SUITE B
 City: SAN CARLOS
 State: CA Zip #: 94070
 Fasting: FASTING No. of hours: 12.0

PROVIDER

Practice Name: Vibrant IT4 Practice
Provider Name: Vibrant IT4, MD (999999)
 Street Address: 999999 PRACTICE STREET AVE
 City: SAN CARLOS
 State: CA
 Zip #: 94404
 Telephone #: 666-666-6662
 Fax #: 111-222-0000

For doctor's reference

Vibrant Wellness is pleased to present to you, '**Environmental Toxins Panel**', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.

The Vibrant Environmental Toxins Panel is a test to measure levels of Environmental Toxins that someone might be exposed to. The panel is designed to give a complete picture of an individual's levels of these toxins in urine.

Interpretation of Report: The report begins with the summary page which lists only the toxins are high or moderate in comparison to the reference range. Following the summary section is the complete list of the environmental toxins along with the levels in a tabular form to enable a full overview along with the corresponding reference ranges. The level of the toxin has a green, yellow or red highlight around the cell indicating – Mild, Moderate or High levels in comparison to our reference population. Additionally, the previous value is also indicated to help check for improvements every time the test is ordered. All contents provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information should be made in consultation with the clinical provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the food additives panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to accept these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician for medication, treatment, diet, exercise or lifestyle management as appropriate. This product is not intended to diagnose, treat, or cure any disease or condition..

Please Note - Pediatric ranges have not been established for this test. To schedule an appointment with Vibrant Clinical Dietitians please call: Toll-Free 866-364-0963..

To schedule an appointment with Vibrant Clinical Dietitians please call: Toll-Free 866-364-0963.

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

Environmental Toxins Summary

Environmental Toxins - High

Test Name	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Methylparaben (mcg/g)	≤220.00	220.01~849.99	≥850.00	975.00	112.00
Bisphenol A (BPA) (mcg/g)	≤3.20	3.21~10.80	≥10.81	12.80	28.40
Phenylglyoxylic Acid (PGO) (mcg/g)	≤105.60	105.61~387.89	≥387.90	488.00	4.50

Environmental Toxins - Moderate

Test Name	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Mono-ethyl phthalate (MEtP) (mcg/g)	≤305.00	305.01~1478.22	≥1478.23	486.80	2.30

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

Environmental Toxins Complete List

Organochlorine pesticides

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
2,4-Dichlorophenoxyacetic Acid (2,4-D)	≤0.30	0.31~2.34	≥2.35	0.05	3.63
Perchlorate	≤2.50	2.51~16.19	≥16.20	1.30	14.08
DDA	≤9.50	9.51~28.79	≥28.80	0.15	8.19

Organophosphate pesticides

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Diethyldithiophosphate (DEDTP)	≤0.20	0.21~0.48	≥0.49	0.16	4.19
Dimethyldithiophosphate (DMDTP)	≤0.80	0.81~5.08	≥5.09	0.80	5.75
Diethylthiophosphate (DETP)	≤0.70	0.71~2.76	≥2.77	0.42	7.49
Dimethylphosphate (DMP)	≤5.20	5.21~37.19	≥37.20	4.78	3.11
Diethylphosphate (DEP)	≤0.80	0.81~12.59	≥12.60	0.42	3.50
Dimethylthiophosphate (DMTP)	≤4.60	4.61~29.20	≥29.21	3.90	9.82
Atrazine	≤0.02	0.03~0.05	≥0.06	<0.01	7.16
Atrazine mercapturate	≤0.03	0.04~0.06	≥0.07	0.01	7.04

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

Other pesticides/herbicides

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Glyphosate	≤0.75	0.76~2.29	≥2.30	0.17	19.76
3-Phenoxybenzoic Acid (3PBA)	≤0.57	0.58~6.39	≥6.40	0.32	29.33

Phthalate Metabolites

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Monoethyl Phthalate (MEP)	≤5.90	5.91~678.89	≥678.90	2.92	29.96
mono-2-ethylhexyl phthalate (MEHP)	≤5.00	5.01~23.89	≥23.90	4.02	3.20
mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)	≤42.00	42.01~168.99	≥169.00	19.65	4.85
mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)	≤20.00	20.01~109.99	≥110.00	0.52	7.83
Mono-ethyl phthalate (MEtP)	≤305.00	305.01~1478.22	≥1478.23	486.80	2.30

Comments

MEP is a metabolite of diethyl phthalate which belongs to the most common environmental toxin phthalates. Phthalates, often known as plasticizers, are a group of chemicals used to make plastics more flexible and harder to break. They are widely used in cosmetics, adhesives, detergents, lubricating oils, automotive plastics, plastic clothes. People are exposed to phthalates by eating or drinking contaminated foods but also by breathing in air that contains phthalate vapors or dusts. Inhaling phthalates can irritate the nose and throat causing coughing and wheezing, headache, dizziness, and nausea. Phthalates have been classified as endocrine disruptors which may cause reproductive damage, depressed leukocyte function, and even cancer. Phthalate exposure has also been associated with diabetes and insulin resistance, breast cancer, obesity, metabolic disorders, and immune disorders. Phthalate exposure and adverse child neurodevelopment, including the development of ADHD and autistic behaviors and lower cognitive and motor development has also been reported.

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

Parabens

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Methylparaben	≤220.00	220.01~849.99	≥850.00	975.00	112.00
Propylparaben	≤45.00	45.01~247.89	≥247.90	43.58	5.07
Butylparaben	≤1.00	1.01~22.62	≥22.63	0.10	4.09
Ethylparaben	≤6.10	6.11~82.17	≥82.18	3.05	7.64

Comments

Methylparaben belongs to the paraben family and is an anti-fungal agent often used in a variety of cosmetics and personal-care products. It is also used as a food preservative. Methylparaben is generally recognized as safe (GRAS) by the USFDA for food and cosmetic antibacterial preservation. Methylparaben is readily absorbed from the gastrointestinal tract or through the skin. Studies indicate that methylparaben applied on the skin may react with UVB, leading to increased skin aging and DNA damage.

Acrylic Metabolites

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
N-acetyl-S-(2-carbamoylethyl)-cysteine (NAE)	≤10.20	10.21~178.59	≥178.60	6.75	4.23
N-Acetyl (2-Cyanoethyl) Cysteine (NACE)	≤11.80	11.81~260.49	≥260.50	8.94	4.18

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

Other Metabolites

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
N-Acetyl (2,Hydroxypropl) Cysteine (NAHP)	≤5.00	5.01~429.99	≥430.00	4.84	9.38
N-Acetyl (3,4-Dihydroxybutyl) Cysteine (NADB)	≤7.50	7.51~478.29	≥478.30	4.44	6.83
2-Hydroxyethyl Mercapturic Acid (HEMA)	≤1.00	1.01~4.79	≥4.80	0.45	9.66
N-Acetyl Propyl Cysteine (NAPR)	≤5.00	5.01~49.99	≥50.00	2.53	5.94
Diphenyl Phosphate (DPP)	≤1.30	1.31~6.09	≥6.10	1.25	1.62
Tiglylglycine (TG)	≤0.10	0.11~11.29	≥11.30	0.08	6.28

Alkylphenol

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Bisphenol A (BPA)	≤3.20	3.21~10.80	≥10.81	12.80	28.40
Triclosan	≤45.00	45.01~417.98	≥417.99	10.56	2.14
4-Nonylphenol	≤0.50	0.51~4.82	≥4.83	0.39	6.69

Comments

BPA is one of the highest volume of chemicals produced worldwide. It is a starting material for the synthesis of plastics. BPA-based plastic is clear and tough, and is made into plastic bottles including water bottles, sports equipment, CDs, and DVDs. Epoxy resins containing BPA are used to line water pipes, as coatings on the inside of many food and beverage cans and in making thermal paper such as that used in sales receipts. BPA is a xenoestrogen, exhibiting estrogen-mimicking, hormone-like properties that raise concern about its suitability in some consumer products and food containers. FDA has ended its authorization of the use of BPA in baby bottles and infant formula packaging, based on market abandonment, not safety. Research has linked exposure to fertility problems, male impotence, heart disease and other conditions.

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1961-01-20	1512010000	11-30-2015

Volatile Organic Compounds (VOCs)

Test Name (mcg/g)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
2-Methylhippuric Acid (2MHA)	≤74.00	74.01~792.29	≥792.30	51.83	4.94
3-Methylhippuric Acid (3MHA)	≤74.00	74.01~792.29	≥792.30	13.78	6.58
4-Methylhippuric Acid (4MHA)	≤74.00	74.01~792.29	≥792.30	3.86	6.68
2-Hydroxyisobutyric Acid (2HIB)	≤1005.00	1005.01~5789.99	≥5790.00	680.03	3.32
Phenylglyoxylic Acid (PGO)	≤105.60	105.61~387.89	≥387.90	488.00	4.50
N-acetyl phenyl cysteine (NAP)	≤0.45	0.46~2.89	≥2.90	0.23	0.77

Comments

PGO is a metabolite of styrene (ethylbenzene, vinylbenzene, phenylethene), which is an important chemical in production of rubber, plastic, insulation, fiberglass, pipes, food containers, and carpet backing. Styrene is a known carcinogen, especially in case of eye contact. Long-term exposure to styrene may cause central nervous system and kidney effects, headaches, depression, fatigue, hearing loss, balance and concentration problems, and even cancer.

Urine Creatinine

Test Name (mg/ml)	In Control	Moderate	High	Current Level	Previous Level 08/20/2015
Creatinine	0.20~2.20		≤0.19 ≥2.21	1.40	1.77

Risk and Limitations

This test has been developed and its performance characteristics determined by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration.

Vibrant Environmental Toxins panel does not demonstrate absolute positive and negative predictive values for any condition. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment.

Environmental Toxins Panel testing is performed at Vibrant America, a CLIA certified laboratory and utilizes ISO-13485 developed technology. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific toxin due to circumstances beyond Vibrant's control. Vibrant may re-test a sample in order to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute the giving of medical advice and are not a substitute for a professional healthcare practitioner. Please consult your provider for questions regarding test results, or before beginning any course of medication, supplementation or dietary/lifestyle changes. Users should not disregard, or delay in obtaining, medical advice for any medical condition they may have, and should seek the assistance of their health care professionals for any such conditions.

Final Report Date:	12-10-2019 16:46	Specimen Collected:	11-30-2015
Accession ID:	1512010000	Specimen Received:	12-01-2015 00:00

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

<h3>PATIENT</h3> <p>Name: PATIENT TESTNAME Date of Birth: 1997-06-22 Gender: Male Age: 22</p> <hr/> <p>Fasting: FASTING No. of hours: 12.0</p>	<h3>PROVIDER</h3> <p>Practice Name: Vibrant IT4 Practice Provider Name: Vibrant IT4, MD (999999) Street Address: 999999 PRACTICE STREET AVE City: SAN CARLOS State: CA Zip #: 94404 Telephone #: 666-666-6662 Fax #: 111-222-0000</p> <hr/> <p>For doctor's reference</p>
---	--

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Heavy Metals (Creatinine)

Test name	In Control	High Risk	In Control Range	High Risk Range	Previous (08/20/2015)
Urine Creatinine (mg/dL)	1		1~2	≤0 ≥3	1
Aluminum (ug/g creat)		62	≤54	≥55	<3
Antimony (ug/g creat)	0.19		≤0.78	≥0.79	1.04
Arsenic (ug/g creat)	1		≤116	≥117	1
Barium (ug/g creat)	<1.0		≤6.9	≥7.0	1.3
Beryllium (ug/g creat)	0.8		≤0.9	≥1.0	1.4
Bismuth (ug/g creat)	0.1		≤14.9	≥15.0	0.5
Cadmium (ug/g creat)		1.9	≤1.5	≥1.6	1.2
Cesium (ug/g creat)	1.2		≤9.9	≥10.0	0.5
Gadolinium (ug/g creat)	0.28		≤0.39	≥0.40	1.19
Lead (ug/g creat)	0.4		≤4.4	≥4.5	1.8
Mercury (ug/g creat)	2.0		≤3.9	≥4.0	2.0
Nickel (ug/g creat)	1.8		≤11.9	≥12.0	0.2
Palladium (ug/g creat)	0.1		≤0.2	≥0.3	0.5
Platinum (ug/g creat)	0.90		≤0.99	≥1.00	1.03
Tellurium (ug/g creat)	0.63		≤0.79	≥0.80	0.08
Thallium (ug/g creat)	0.6		≤0.8	≥0.9	0.4
Thorium (ug/g creat)	0.4		≤0.5	≥0.6	0.5
Tin (ug/g creat)	1.8		≤9.9	≥10.0	1.8
Tungsten (ug/g creat)	0.41		≤0.99	≥1.00	1.17
Uranium (ug/g creat)	0.10		≤0.13	≥0.14	0.09

Specimen Information

Provoking Status: PROVOKING

Urine Volume: 1.50 L

Agent: Test

Dosage: 5.0 mg

Estimated: ESTIMATED

** Reference intervals are representative of a healthy population under non-provoked conditions. Chelation (provocation) agents can increase urinary excretion of metals/elements.*

Final Report Date:	12-13-2019 15:43	Specimen Collected:	11-30-2015
Accession ID:	1512010000	Specimen Received:	12-01-2015 00:00

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

PATIENT

Name: PATIENT TESTNAME
 Date of Birth: 1997-06-22
 Gender: Male
 Age: 22

Fasting: FASTING No. of hours: 12.0

PROVIDER

Practice Name: Vibrant IT4 Practice
Provider Name: Vibrant IT4, MD (999999)
 Street Address: 999999 PRACTICE STREET AVE
 City: SAN CARLOS
 State: CA
 Zip #: 94404
 Telephone #: 666-666-6662
 Fax #: 111-222-0000

For doctor's reference

Vibrant Wellness is pleased to present to you, '**Mycotoxins**', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.

The Vibrant Mycotoxins is a test to identify and quantify the level of a large set of mycotoxins from both food and environmental molds. The panel is designed to give a complete picture of an individual's levels of these mycotoxins in urine. The results are provided in 3 tables subgrouping the mycotoxins into Aflatoxins, Trichothecenes and Other Mycotoxins

Interpretation of Report: The report begins with the Mycotoxins summary page which lists only the mycotoxins whose levels are high or moderate in the reference range. Following this section is the complete list of the mycotoxins along with the corresponding species and their absolute levels in pg/ml in a tabular form to enable a full overview along with the reference ranges. The level of the mycotoxin has a green, yellow or red highlight around the cell indicating – Mild (Low mold diet intake), Moderate or High exposure to the particular mycotoxin. Additionally, the previous value is also indicated to help check for improvements every time the test is ordered.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Mycotoxins panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to accept these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician/dietitian for medication, treatment, or lifestyle management. This product is not intended to diagnose, treat, or cure any disease.

Please Note - It is important that you discuss any modifications to your diet, exercise and nutritional supplementation with your physician before making any changes.

To schedule an appointment with Vibrant Clinical Dietitians please call: Toll-Free 866-364-0963.

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Mycotoxins Summary

Mycotoxins - High

Test Name	Species Name	In Control	Moderate	High	Current Level	Previous Level (08/20/2015)
Citrinin (ng/g)	Penicillium	≤9.4	9.5~18.8	≥18.9	20.1	0.8
Roridin H (ng/g)	Stachybotrys chartarum	≤6.3	6.4~12.6	≥12.7	19.3	0.3

Mycotoxins - Moderate

Test Name	Species Name	In Control	Moderate	High	Current Level	Previous Level (08/20/2015)
Ochratoxin A (ng/g)	Aspergillus, Penicillium	≤5.1	5.2~10.2	≥10.3	7.0	0.5

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Mycotoxins Complete List

Aflatoxin

Test Name (ng/g)	Species Name	In Control	Moderate	High	Current Level	Previous Level (08/20/2015)
Aflatoxin M1	Aspergillus	≤4.8	4.9~9.6	≥9.7	<0.1	<0.1
Aflatoxin B1	Aspergillus	≤5.2	5.3~10.4	≥10.5	4.0	<0.1
Aflatoxin B2	Aspergillus	≤6.1	6.2~12.2	≥12.3	4.0	0.2
Aflatoxin G1	Aspergillus	≤4.9	5.0~9.8	≥9.9	1.0	0.2
Aflatoxin G2	Aspergillus	≤8.1	8.2~16.2	≥16.3	<0.1	0.9

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Other

Test Name (ng/g)	Species Name	In Control	Moderate	High	Current Level	Previous Level (08/20/2015)
Ochratoxin A	Aspergillus, Penicillium	≤5.1	5.2~10.2	≥10.3	7.0	0.5
Sterigmatocystin	Aspergillus, Penicillium, Bipolaris	≤0.4	0.5~0.8	≥0.9	<0.1	0.9
Zearalenone	Fusarium	≤0.5	0.6~1.0	≥1.1	<0.1	0.2
Enniatin B1	Fusarium	≤0.1	0.2~0.4	≥0.5	<0.1	4.5
Fumonisin B1	Fusarium	≤4.6	4.7~9.2	≥9.3	<0.1	0.3
Fumonisin B2	Fusarium	≤5.4	5.5~10.8	≥10.9	<0.1	0.6
Fumonisin B3	Fusarium	≤8.1	8.2~16.2	≥16.3	6.0	0.7
Citrinin	Penicillium	≤9.4	9.5~18.8	≥18.9	20.1	0.8
Patulin	Penicillium	≤8.7	8.8~17.4	≥17.5	7.0	0.3
Glutotoxin	Aspergillus	≤155.9	156.0~311.8	≥311.9	94.0	0.4
Mycophenolic Acid	Penicillium	≤4.8	4.9~9.6	≥9.7	2.0	0.4
Dihydrocitrinone	Aspergillus, Penicillium, Monascus	≤12.4	12.5~24.8	≥24.9	5.0	0.5
Chaetoglobosin A	Chaetomium globosum	≤23.9	24.0~47.8	≥47.9	15.0	6.4

Comments

Ochratoxin A

Members of the ochratoxin A have been found as metabolites of many different species of *Aspergillus* and *Penicillium*. The level of Ochratoxin A production also influenced by the substrate on which the molds grow as well as the moisture level, temperature, and presence of competitive microflora interact to influence the level of toxin produced. Ochratoxin A has been found in barley, oats, rye, wheat, coffee beans, and other plant products, with barley having a particularly high likelihood of contamination. Ochratoxin has been detected in blood and other animal tissues and in milk, including human milk. Ochratoxin A is a nephrotoxin to all animal species studied to date and is most likely toxic to humans, who have the longest half-life for its elimination of any of the species. It is frequently found in pork intended for human consumption. Ochratoxin is believed to be responsible for a porcine nephropathy that has been studied intensively in the Scandinavian countries. The disease is endemic in Denmark, where rates of porcine nephropathy and ochratoxin contamination in pig feed are highly correlated. In addition to being a nephrotoxin, animal studies indicate that ochratoxin A is a liver toxin, an immune suppressant, a potent teratogen, and a carcinogen.³

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Citrinin

Citrinin (CTN) is a nephrotoxic mycotoxin mainly produced by *Penicillium* although other genera such as *Aspergillus* and *Monascus* are also known to produce these toxins. CTN occurs in different plant products, especially in grains, and also in beans, fruit, vegetables, herbs and spices. Often, the co-occurrence with other mycotoxins is observed, especially ochratoxin A (OTA). It is a known fact that CTN occurs during fermentation of red mould rice as a secondary metabolite of *Monascus purpureus*. Red mould rice has been used for lowering lipoprotein levels in blood and also as a food dye for centuries. Besides its nephrotoxicity, which has been proved by various studies, there is also proof that CTN is involved in induction of apoptosis through oxidative stress, although the precise regulatory mechanism is yet to be determined.¹⁰

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Trichothecenes

Test Name (ng/g)	Species Name	In Control	Moderate	High	Current Level	Previous Level (08/20/2015)
Roridin E	Fusarium, Myrothecium, Stachybotrys	≤1.0	1.1~2.0	≥2.1	1.0	0.6
Verrucarin A	Fusarium, Myrothecium, Stachybotrys	≤1.0	1.1~2.0	≥2.1	1.0	0.2
Deoxynivalenol (Vomitoxin/DON)	Fusarium	≤50.6	50.7~101.2	≥101.3	22.0	0.1
Nivalenol (NIV)	Fusarium	≤2.4	2.5~4.8	≥4.9	<0.1	0.8
diacetoxyscirpenol (DAS)	Fusarium	≤3.2	3.3~6.4	≥6.5	1.0	5.6
T-2 toxin	Fusarium	≤0.1	0.2~0.3	≥0.4	<0.1	0.9
Satratoxin G	Stachybotrys chartarum	≤0.1	0.2~0.3	≥0.4	<0.1	0.5
Satratoxin H	Stachybotrys chartarum	≤0.1	0.2~0.3	≥0.4	<0.1	0.2
Isosatratoxin F	Stachybotrys chartarum	≤0.1	0.2~0.3	≥0.4	<0.1	0.2
Roridin A	Stachybotrys chartarum	≤5.7	5.8~11.4	≥11.5	1.0	0.2
Roridin H	Stachybotrys chartarum	≤6.3	6.4~12.6	≥12.7	19.3	0.3
Roridin L-2	Stachybotrys chartarum	≤5.1	5.2~10.2	≥10.3	4.0	0.7
Verrucarin J	Stachybotrys chartarum	≤6.9	7.0~13.8	≥13.9	<0.1	1.0

Comments

Roridin H

Roridin H is produced mainly by Stachybotrys and categorized as a trichothecene mycotoxin. There are reports showing the involvement of these trichothecene in the development of 'sick building syndrome'. These trichothecenes were found in air samples in the ventilation systems of private houses and office buildings, and on the walls of houses with high humidity. The symptoms of airborne toxicosis disappeared when the buildings and ventilation systems were thoroughly cleaned.²⁵

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
TESTNAME	PATIENT	MALE	1997-06-22	1512010000	11-30-2015

Urinary Creatinine

Test Name (mg/ml)	Species Name	In Control	Moderate	High	Current Level	Previous Level (08/20/2015)
Urine Creatinine		0.2~2.2		≤0.1 ≥2.3	2.0	<0.1

Key Terms/Glossary

Mycotoxin

A toxic substance produced by a fungus

Antibacterial Compound

A compound active against bacteria to kill or remove them from the body

Anthelmintic Compound

A group of antiparasitic drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host.

Antifungal

A pharmaceutical fungicide or fungistatic used to treat and prevent mycosis.

Detoxification

Physiological or medicinal process of removal of toxic substances from a living organism, including the human body

Sick building syndrome

Medical condition where people in a building suffer from symptoms of illness or feel unwell for no apparent reason

Hepatocarcinoma

The most common primary liver tumor

Antischistosomal

An agent capable of affecting the viability of schistosomes

Sequestering agent

Nonabsorbable material capable of binding toxins in the gastrointestinal tract and reducing enterohepatic recirculation and ultimately the body burden of toxins.

Citations/Sources

- [1] Gurban, A. M.; Epure, P.; Oancea, F.; Doni, M., Achievements and Prospects in Electrochemical-Based Biosensing Platforms for Aflatoxin M₁ Detection in Milk and Dairy Products. *Sensors (Basel, Switzerland)* 2017, 17 (12).
- [2] Marchese, S.; Polo, A.; Ariano, A.; Velotto, S.; Costantini, S.; Severino, L., Aflatoxin B1 and M1: Biological Properties and Their Involvement in Cancer Development. *Toxins* 2018, 10 (6).
- [3] Bennett, J. W.; Klich, M., Mycotoxins. *Clinical microbiology reviews* 2003, 16 (3), 497-516.
- [4] Viegas, C.; Nurme, J.; Pieckova, E.; S, V., Sterigmatocystin in foodstuffs and feed: aspects to consider. *Mycology* 2018, 2018.
- [5] Mycotoxins and human health. *IARC Sci Publ* 2012, (158), 87-104.
- [6] Johanning, E.; Biagini, R.; Hull, D.; Morey, P.; Jarvis, B.; Landsbergis, P., Health and immunology study following exposure to toxigenic fungi (*Stachybotrys chartarum*) in a water-damaged office environment. *International archives of occupational and environmental health* 1996, 68 (4), 207-18.
- [7] Hughes, B. J.; Taylor, M. J.; Sharma, R. P., Effects of verrucarin A and roridin A, macrocyclic trichothecene mycotoxins, on the murine immune system. *Immunopharmacology* 1988, 16 (2), 79-87.
- [8] Prosperini, A.; Berrada, H.; Ruiz, M. J.; Caloni, F.; Coccini, T.; Spicer, L. J.; Perego, M. C.; Lafranconi, A., A Review of the Mycotoxin Enniatin B. *Frontiers in Public Health* 2017, 5, 304.
- [9] Peraica, M.; Radic, B.; Lucic, A.; Pavlovic, M., Toxic effects of mycotoxins in humans. *Bull World Health Organ* 1999, 77 (9), 754-66.
- [10] Turner, P. C.; Nikiema, P.; Wild, C. P., Fumonisin contamination of food: progress in development of biomarkers to better assess human health risks. *Mutat Res* 1999, 443 (1-2), 81-93.
- [11] Čulig, B.; Bevardi, M.; Bošnjir, J.; Serdar, S.; Lasić, D.; Racz, A.; Galić, A.; Kuharić, Ž., PRESENCE OF CITRININ IN GRAINS AND ITS POSSIBLE HEALTH EFFECTS. *African journal of traditional, complementary, and alternative medicines : AJTCAM* 2017, 14 (3), 22-30.
- [12] Puel, O.; Galtier, P.; Oswald, I. P., Biosynthesis and toxicological effects of patulin. *Toxins* 2010, 2 (4), 613-31.
- [13] Pal, S.; Singh, N.; Ansari, K. M., Toxicological effects of patulin mycotoxin on the mammalian system: an overview. *Toxicology research* 2017, 6 (6), 764-771.
- [14] Hussein, H. S.; Brasel, J. M., Toxicity, metabolism, and impact of mycotoxins on humans and animals. *Toxicology* 2001, 167 (2), 101-34.
- [15] Mueller, A.; Schlink, U.; Wichmann, G.; Bauer, M.; Graebisch, C.; Schuurmann, G.; Herbarth, O., Individual and combined effects of mycotoxins from typical indoor moulds. *Toxicology in vitro : an international journal published in association with BIBRA* 2013, 27 (6), 1970-8.
- [16] Egbuta, M. A.; Mwanza, M.; Babalola, O. O., Health Risks Associated with Exposure to Filamentous Fungi. *Int J Environ Res Public Health* 2017, 14 (7).
- [17] Aleksic, B.; Draghi, M.; Ritoux, S.; Bailly, S.; Lacroix, M.; Oswald, I. P.; Bailly, J. D.; Robine, E., Aerosolization of mycotoxins after growth of toxinogenic fungi on wallpaper. *Appl Environ Microbiol* 2017.
- [18] Follmann, W.; Behm, C.; Degen, G. H., Toxicity of the mycotoxin citrinin and its metabolite dihydrocitrinone and of mixtures of citrinin and ochratoxin A in vitro. *Arch Toxicol* 2014, 88 (5), 1097-107.
- [19] Fogle, M. R.; Douglas, D. R.; Jumper, C. A.; Straus, D. C., Growth and mycotoxin production by *Chaetomium globosum* is favored in a neutral pH. *Int J Mol Sci* 2008, 9 (12), 2357-65.
- [20] Pestka, J., Toxicological mechanisms and potential health effects of deoxynivalenol and nivalenol. *World Mycotoxin Journal* 2010, 3 (4), 323-347.
- [21] Knutsen, H. K.; Alexander, J.; Barregård, L.; Bignami, M.; Brüschweiler, B.; Ceccatelli, S.; Cottrill, B.; Dinovi, M.; Grasl-Kraupp, B.; Hogstrand, C.; Hoogenboom, L.; Nebbia, C. S.; Oswald, I. P.; Petersen, A.; Rose, M.; Roudot, A.-C.; Schwerdtle, T.; Vleminckx, C.; Vollmer, G.; Wallace, H.; De Saeger, S.; Eriksen, G. S.; Farmer, P.; Freymy, J.-M.; Gong, Y. Y.; Meyer, K.; Parent-Massin, D.; van Egmond, H.; Altieri, A.; Colombo, P.; Horváth, Z.; Levorato, S.; Edler, L., Risk to human and animal health related to the presence of 4,15-diacetoxyscirpenol in food and feed. *EFSA Journal* 2018, 16 (8), e05367.
- [22] Hope, J., A Review of the Mechanism of Injury and Treatment Approaches for Illness Resulting from Exposure to Water-Damaged Buildings, Mold, and Mycotoxins. *The Scientific World Journal* 2013, 2013, 20.
- [23] Etzel, R. A., Mycotoxins. *JAMA* 2002, 287 (4), 425-7.

Citations/Sources

- [24] Wang, J. S.; Shen, X.; He, X.; Zhu, Y. R.; Zhang, B. C.; Wang, J. B.; Qian, G. S.; Kuang, S. Y.; Zarba, A.; Egner, P. A.; Jacobson, L. P.; Munoz, A.; Helzlsouer, K. J.; Groopman, J. D.; Kensler, T. W., Protective alterations in phase 1 and 2 metabolism of aflatoxin B1 by oltipraz in residents of Qidong, People's Republic of China. *Journal of the National Cancer Institute* 1999, 91 (4), 347-54.
- [25] Moosavi, M., Bentonite Clay as a Natural Remedy: A Brief Review. *Iranian journal of public health* 2017, 46 (9), 1176-1183.
- [26] Dvorak, M., [Ability of bentonite and natural zeolite to adsorb aflatoxin from liquid media]. *Veterinari medicina* 1989, 34 (5), 307-16.
- [27] Renzulli, C.; Galvano, F.; Pierdomenico, L.; Speroni, E.; Guerra, M. C., Effects of rosmarinic acid against aflatoxin B1 and ochratoxin-A-induced cell damage in a human hepatoma cell line (Hep G2). *Journal of applied toxicology : JAT* 2004, 24 (4), 289-96.
- [28] Guilford, F. T.; Hope, J., Deficient glutathione in the pathophysiology of mycotoxin-related illness. *Toxins* 2014, 6 (2), 608-23.
- [29] Peterson, S.; Lampe, J. W.; Bammler, T. K.; Gross-Steinmeyer, K.; Eaton, D. L., Apiaceous vegetable constituents inhibit human cytochrome P-450 1A2 (hCYP1A2) activity and hCYP1A2-mediated mutagenicity of aflatoxin B1. *Food Chem Toxicol* 2006, 44 (9), 1474-84.

Risk and Limitations

This test has been developed and its performance characteristics determined by Vibrant America LLC., a CLIA and CAP certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration.

Mycotoxins do not demonstrate absolute positive and negative predictive values for mold related illnesses. Clinical history must be incorporated into the diagnostic determination. Quantification of mycotoxins in urine is not FDA-recognized diagnostic indicator of mold exposure.

Mycotoxins testing is performed at Vibrant America, a CLIA certified laboratory and utilizes ISO-13485 developed technology. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific mycotoxin due to circumstances beyond Vibrant's control. Vibrant may re-test a sample in order to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute medical advice and are not a substitute for professional medical advice. Please consult your healthcare practitioner for questions regarding test results, or before beginning any course of medication, supplementation or dietary changes.