VibrantWellness

LECTIN
ZOOMER

Lectin Zoomer

Identify, monitor, and manage lectin sensitivities

VibrantWellness

Vibrant Wellness | 1360 Bayport Ave, Ste B. San Carlos, CA 94070
1(866) 364-0963 | support@vibrant-america.com | www. vibrant-wellness.com

Final Report Date:	04-09-2018 12:58		Specimen Collected:	04-03-2018 12:44	
Accession ID:	1512010000		Specimen Received:	04-04-2018 09:04	

LAST NAME	FIRST NAME	MIDDLE NAME	GENDER	DATE OF BIRTH	ACCESSION ID
TESTNAME	PATIENT		FEMALE	1980-10-10	1512010000

PATIENT

Name: PATIENT TESTNAME
Date of Birth: 1980-10-10
Gender: Female
Age: 37

Telephone #: 1-866-364-0963
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Fasting: FASTING   No. of hours: 12.0
EMR #: V1609100001

PROVIDER

Practice Name: Demo Client, MD
Provider Name: Demo Client, MD (999994)
Phlebotomist:
Street Address: 1234 TEST AVENUE
City: TEST
State: CA
Zip #: 12345
Telephone #: 1-800-842-7268
Fax #:

For doctor's reference

Your Vibrant Wellness Lectin Zoomer results are enclosed. These results are intended to help you make healthy lifestyle and dietary choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage informed nutritional and health changes.

Vibrant Lectin Zoomer is an array of commonly consumed food lectins and aquaporins which offers very specific antibody-to-antigen recognition. The panel is designed to assess an individual's IgG and IgA sensitivity to these antigens at the peptide level.

Interpretation of Report: The test results of antibody levels to the individual proteins are calculated by comparing the average intensity of the individual protein antibody to that of a healthy reference population. Reference ranges have been established using 192 healthy individuals. The results are displayed as Positive ➕, Moderate Sensitivity ⌄ or Negative ➖. A Positive result indicates that you have an increased IgG/IgA reaction to the antigen with respect to the reference range. A Moderate sensitivity result indicates that you have a moderate IgG/IgA reaction to the food antigen with respect to the reference range. A Negative or no sensitivity result indicates that you have a low IgG/IgA reaction to the food antigen with respect to the reference range. Vibrant utilizes proprietary fluorescent analysis which is designed to assay specific total IgG (subclasses 1, 2, 3, 4), and total IgA (subclasses 1, 2) antibodies. The classification of Positive to Moderate to Negative denotes the level of IgG and/or IgA antibodies detected through this analysis.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for lectin and aquaporin sensitivity offered by Vibrant Wellness is performed by Vibrant America LLC, 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.**

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TESTNAME	PATIENT		FEMALE	1980-10-10	1512010000

INTRODUCTION

Lectins are a large class of sugar-binding proteins that can be found in all forms of life. In plants, lectins are part of the natural defense against microorganisms, pests, and insects.[1] Lectins are most commonly found in the part of the seed that becomes the leaves when the plant sprouts, but also on the seed coat. Not all lectins are bad, but some lectins that are found in large concentrations in legumes, grains, and nightshade vegetables can become problematic for human health because they:

☐ **are resistant to digestion** – lectins may overfeed certain species of gut bacteria and lead to gut dysbiosis[2]
☐ **have anti-nutrient effects –** lectins can damage intestinal epithelial cells or open up the junctions between the cells, which can increase risk of developing intestinal permeability, which can lead to autoimmunity [3]
☐ **can over-stimulate the immune system** –lectins can provoke antibodies causing immune responses[4]

Two classes of lectins are known to have the above properties and may cause diseases. The first are prolamins (e.g., gluten) and the second are agglutinins (e.g., wheat germ agglutinin). Both prolamins and agglutinins affect the type of bacteria in the gut and can enter the body through the gut barrier. Individuals can be sensitive and intolerant to certain foods due to the immune responses triggered by particular lectins. Activation of the immune system can produce antibodies against the lectins, other food antigens, and bacterial toxins due to cross-reaction between different food and bacterial antigens. Detection of antibodies to food lectins should be used as a basis for recommendations to improve eating habits (in consultation with your dietitian) and reduce the risk of development of autoimmunity.

Aquaporins, also known as "water channels", are integral membrane proteins that form pores in the membrane of biological cells to facilitate water transport between cells. Aquaporins are found in all cells and help move water through the cells in an organized manner. Aquaporin 4 (AQR-4) is the most prevalent aquaporin channel in the central nervous system. Aquaporins from food sources (e.g., spinach, soy, corn, tomato, etc.) show similarity to the brain AQR-4.[5] Since aquaporins from food are highly stable during food preparation and may enter the human body as intact proteins, they become antigenic and trigger the production of antibodies. The antibodies against food aquaporins can be cross-reactive to human AQR-4 and there may be increased risk of neural autoimmunity.[5,6] Detection of antibodies to food aquaporins may indicate the need to adjust the diet in patients with neurological autoimmunity and/or those with a family history of such disorders.

The Vibrant™ Lectin Zoomer evaluates sensitivity to 16 lectins and 7 Aquaporins at the peptide level. The identification of peptides instead of proteins reduces the possibility of cross-reactivity and the peptide-based microarray technique also eliminates the requirement of testing different forms of lectin (raw vs. cooked).

LAST NAME	FIRST NAME	MIDDLE NAME	GENDER	DATE OF BIRTH	ACCESSION ID
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SUMMARY

Positive for IgG: Consider eliminating these foods from your diet in consultation with your healthcare provider.
Moderate for IgG: Consider rotation plan/eliminating these foods from your diet in consultation with your healthcare provider.
Positive/Moderate for IgA: Consider eliminating these foods from your diet in consultation with your healthcare provider.

Positive		Moderate		Negative			
IgG	IgA	IgG	IgA				
Lectin Peanut Rye Kidney bean **Aquaporin** Spinach	**Lectin** Barley Chickpea Tomato	**Lectin** Bell pepper	**Aquaporin** Soybean	**Lectin**			
				Corn Mung Soybean	Cucumber Pea	Lentil Potato	Lima bean Rice
				Aquaporin			
				Corn Bell pepper	Tobacco	Tomato	Potato

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TESTNAME	PATIENT		FEMALE	1980-10-10	1512010000

LIFESTYLE CONSIDERATIONS

Avoid/rotate certain foods and improve cooking methodology

If you have any food sensitivities or suffer from autoimmune diseases, try to avoid/rotate lectin-rich foods including legumes, grains, and nightshade vegetables. If you prefer to consume a diet with lectin-rich foods, try to reduce the amounts of lectins by thoroughly cooking, sprouting, soaking, and fermenting. Different foods require different cooking methodologies to remove lectins. Refer to the respective food sections for more details. Here are some general suggestions:

Sprouting: Sprouting seeds, grains, or beans decreases the lectin content. Generally, the longer the duration of sprouting, the more lectins are deactivated. However, in some cases the lectin activity is enhanced by sprouting (e.g., alfalfa sprouts). The lectins in some grains and beans are in the seed coat. As it germinates, the coat is metabolized – eliminating lectins.

Soaking: Soak beans and legumes overnight, and change the water often. Drain and rinse again before cooking. Adding baking soda to the soaking water may help neutralize the lectins further. Lectins are resistant to dry heat, so using raw legume flours in baked goods should be done with caution.

Fermenting: Fermentation allows beneficial bacteria to digest and convert many of the harmful substances including lectins.

If you have only mild to moderate sensitivity to certain food that you prefer to eat, you may consult with your healthcare provider about a rotation diet. A rotation diet is a structured way of eating a group of related foods one day, then waiting several days (usually 3-5 days) before eating those foods again. Using a rotation diet can increase the overall nutritional diversity of the diet and may help in developing oral tolerance.

Consider using digestive enzyme supplements

The role of digestive enzymes is primarily to help break down larger molecules of food into more easily absorbed particles that the body can use to survive. Taking a good digestive enzyme supplement can help minimize the negative effects of consuming lectin-rich foods. When you are looking for a commercial digestive enzyme supplement, consider one with the following properties:

- Contain a variety of enzymes: different enzyme subtypes can address different digestion problems and provide a variety of benefits. The necessary enzymes include carbohydrate metabolizing enzymes (amylases), proteolytic enzymes (proteases), and fat-metabolizing enzymes (lipases).

- Function in a wide pH range: the pH ranges in the stomach and small intestine are significantly varied. In the stomach, the pH is 1.5 to 3.5 and in the small intestine, the pH is 6 to 7.4. This means the enzymes should be formulated to survive and thrive in both pH ranges.

- Bioavailable enzymes: Intestinal stress is a major contributor to the formation of intestinal permeability ("leaky gut syndrome"). Bioavailable enzymes can improve nutrient absorption when gastrointestinal inflammation is present.

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GRAINS

LECTINS

Barley
(Botanical name: Hordeum vulgare)

Barley is an excellent source of both soluble and insoluble fiber. Barley has been shown to improve skin care, boosting immunity, and preventing disorders such as osteoporosis, gallstones, and diabetes.[7] To lower the level of lectins in barley, it is recommended to soak and sprout hulled uncooked barley grains or buy sprouted barley flour for baking. Raw barley grains can be sprouted by soaking them for 8-12 hours and then sprouting them over the course of about 3 days. Using a pressure cooker does not deactivate lectins in barley.
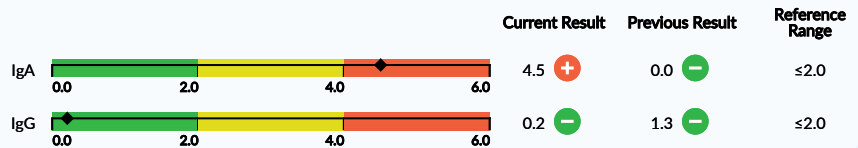
	Current Result	Previous Result	Reference Range
IgA	4.5 ➕	0.0 ➖	≤2.0
IgG	0.2 ➖	1.3 ➖	≤2.0

Corn
(Botanical name: Zea mays)

Corn primarily provides carbohydrate calories, with a small amount of protein. This grain is also rich in vitamins and minerals. Its high fiber content can help prevent digestive ailments such as constipation and hemorrhoids and even colorectal cancer. The antioxidant components may be beneficial, as antioxidants act as anti-carcinogenic agents and may help prevent Alzheimer's disease. However, corn has been known to have a high level of lectins.[8] It is recommended to entirely eliminate/rotate corn from the diet for people who are sensitive because the lectins in corn are resistant to heat.
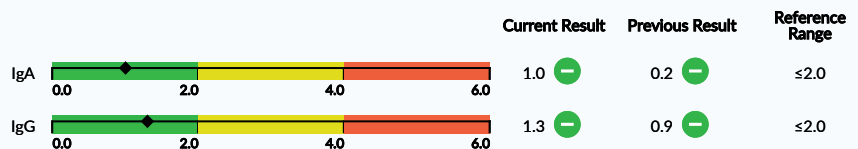
	Current Result	Previous Result	Reference Range
IgA	1.0 ➖	0.2 ➖	≤2.0
IgG	1.3 ➖	0.9 ➖	≤2.0

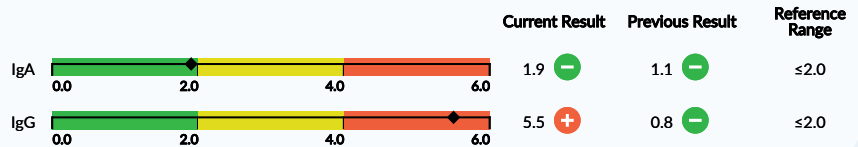| LAST NAME	FIRST NAME	MIDDLE NAME	GENDER	DATE OF BIRTH	ACCESSION ID
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Rice
(Botanical name: Oryza sativa)

Rice is a grain abundant in carbohydrates, which are a quick energy source. Its fibrous components also play a role in regulating bowel movements, stabilizing blood sugar levels, and reducing high blood pressure. Much of the nutritional value of rice depends on whether the hull of the rice has been removed (white rice) or left on (brown rice). The hull contains all the nutrients in the rice but also lectins, which are potentially problematic. Normal cooking methods can help to reduce lectins in rice, but only pressure cooking can completely eliminate them.

|	Current Result	Previous Result	Reference Range
IgA	1.2 ⊖	0.7 ⊖	≤2.0
IgG	1.7 ⊖	0.2 ⊖	≤2.0
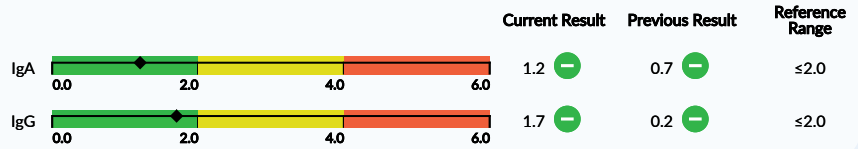
Rye
(Botanical name: Secale cereale)

Rye is often considered a superior grain to wheat or barley in terms of its role in weight loss, because rye fibers have exceptionally high water-binding capacity and quickly give a feeling of fullness and satiety.[9] The low glycemic index of rye breads contribute to a stable level of blood glucose and makes rye breads suitable food for type 2 diabetes sufferers, in moderation. Unlike other plant lectins, using a pressure cooker does not remove lectins in rye. Switching to baked goods and cereals made with more refined rye flour instead of the whole grains can lower the level of lectins, but there will be an adverse glycemic effect.

	Current Result	Previous Result	Reference Range
IgA	1.9 ⊖	1.1 ⊖	≤2.0
IgG	5.5 ⊕	0.8 ⊖	≤2.0

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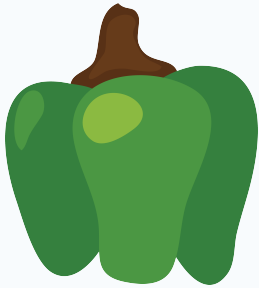
Bell pepper
*(Botanical name: Capsicum annuum)*

Bell pepper is a member of the nightshade family. Bell peppers are rich in vitamins and minerals. For instance, a green pepper contains more than twice the vitamin C of an orange. The vitamin K (phylloquinone) content in bell peppers has been shown to affect blood coagulation and protect against osteoporosis.[10] Despite its nutritional value, red and green bell peppers contain 10 mg or less of lectin per kilogram. The majority of lectins are in the peels and the seeds of nightshades. To lower the level of lectins in bell peppers, it's recommended to peel and deseed them, else they can be pressure cooked, or fermented.

	Current Result	Previous Result	Reference Range
IgA	0.9	0.4	≤2.0
IgG	3.9	0.2	≤2.0
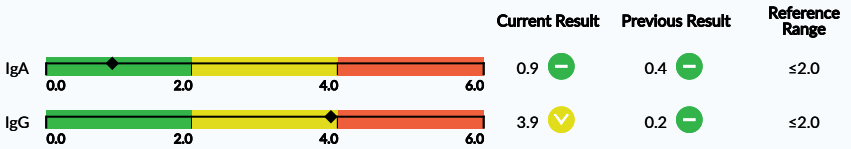
Potato
*(Botanical name: Solanum tuberosum)*

Potato is among the nightshade family with high levels of potassium, which has been shown to decrease the risk of heart disease. Potato skins are particularly rich in an antioxidant component called chlorogenic acid, which has been associated with a reduction in the risk of heart disease, type 2 diabetes and Alzheimer's disease.[11] Potatoes are high in lectins that appear to be resistant to heat. About 40-50% of the lectin content remains after cooking.[12] To lower the level of lectins in potatoes, it is recommended to peel and use a pressure cooker.

	Current Result	Previous Result	Reference Range
IgA	0.8	0.1	≤2.0
IgG	1.0	0.6	≤2.0
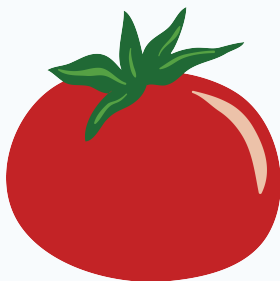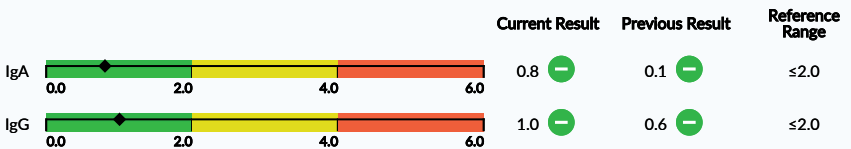
Tomato
(Botanical name: Lycopersicon esculentum)

Tomato, as a member of the nightshade family, is high in fiber and vitamin C. Tomato provides a good source of potassium, folate and vitamin K1. The antioxidant lycopene component in tomatoes has been found to reduce inflammation, heart disease, and may even protect against cancer. The lectin in tomatoes has not been directly linked to any negative effects in humans. However, tomato lectin is known to enter the blood stream relatively quickly in humans, which suggests that it may contribute to or indicate the presence of the development of greater intestinal permeability (leaky gut).[13]
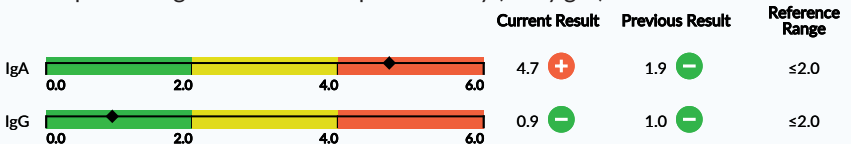
	Current Result	Previous Result	Reference Range
IgA	4.7	1.9	≤2.0
IgG	0.9	1.0	≤2.0

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Chickpea
*(Botanical name: Cicer arietinum)*

Chickpea, which is extensively featured in the Mediterranean diet and Middle Eastern food, is a good source of protein, carbohydrates, and fiber. Chickpea is a type of legume that helps to increase satiety, boost digestion, and keep blood sugar levels stable. To reduce the level of lectins in chickpeas, it is recommended to soak overnight, rinse and drain, then thoroughly cook or use a pressure cooker. Taking digestive enzyme supplements can help in digesting legumes.

	Current Result	Previous Result	Reference Range
IgA	4.6 +	1.8 —	≤2.0
IgG	0.4 —	0.1 —	≤2.0
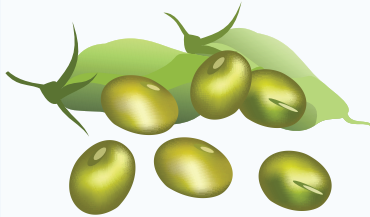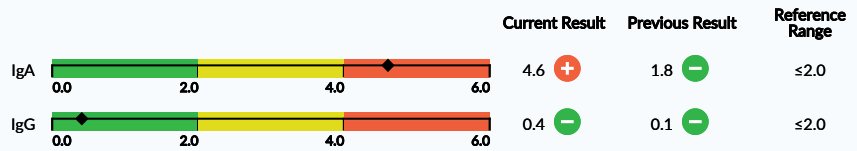
Lentil
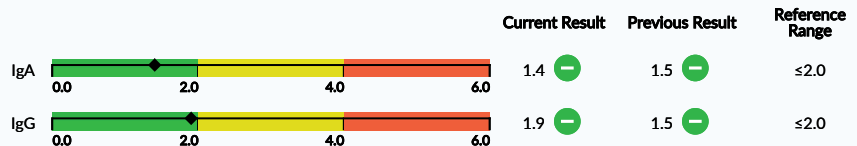*(Botanical name: Lens culinaris)*

Lentils are a type of legume with high fiber content, which can lower cholesterol and manage blood glucose. Lentils also provide excellent amounts of seven important vitamins and protein. However, as legumes, lentils contain more lectins than most other foods and the lectins can be problematic for human health.[14] To reduce the level of lectins in lentils, it is recommended to soak overnight, rinse and drain, then thoroughly cook or use a pressure cooker. Taking digestive enzyme supplements can help to digest legumes.

	Current Result	Previous Result	Reference Range
IgA	0.0 —	1.4 —	≤2.0
IgG	1.5 —	1.2 —	≤2.0
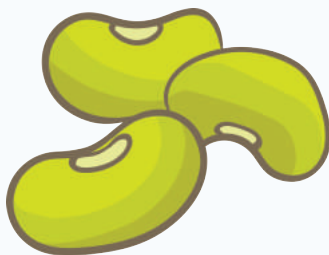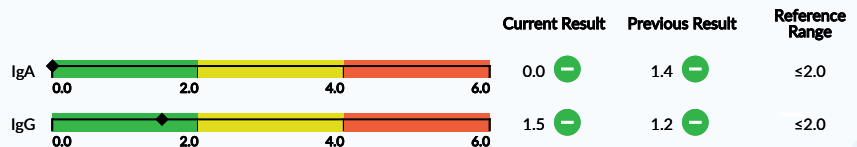
Lima bean
(Botanical name: Phaseolus lunatus)

Lima beans, also called "butter beans", are a type of legume. Lima beans have a high fiber content which can prevent blood sugar levels from rising rapidly after a meal. Lima bean is also an excellent source of trace minerals and molybdenum, which can help detoxify sulfites. However, lima beans contain high levels of lectins which are potentially problematic to health.[15] To reduce the level of lectins in lima beans, it is recommended to soak them overnight, rinse and drain, then thoroughly cook. Taking digestive enzyme supplements can help to digest legumes.

	Current Result	Previous Result	Reference Range
IgA	1.4 —	1.5 —	≤2.0
IgG	1.9 —	1.5 —	≤2.0

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Mung bean
(Botanical name: Vigna radiata)

Mung bean is a type of legume and a high source of protein, fiber, antioxidants, and other micronutrients. Mung beans have the ability to regulate cholesterol levels and their antioxidant content may reverse damage done to blood vessels, lowering inflammation. Raw mung beans contain lectins which are unhealthy to consume in large quantities.[16] To reduce the level of lectins in mung beans, it is recommended to sprout, rinse and drain, then thoroughly cook. Taking digestive enzyme supplements can help to digest legumes.

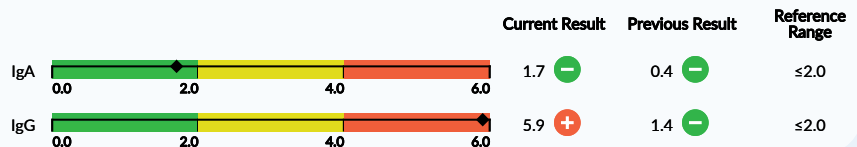|	Current Result	Previous Result	Reference Range
IgA	1.3 ⊖	0.4 ⊖	≤2.0
IgG	0.1 ⊖	0.8 ⊖	≤2.0
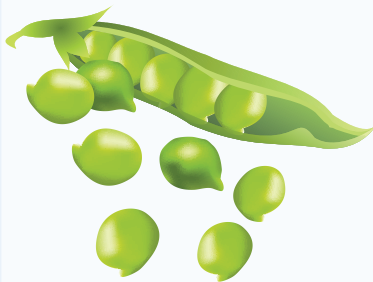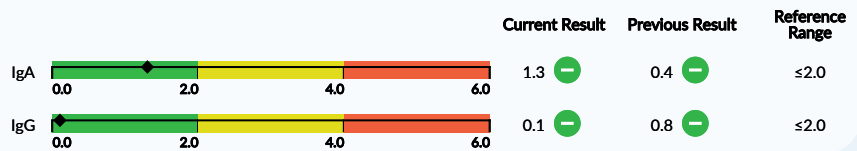
Pea
(Botanical name: Pisum sativum)

Pea is a type of edible podded legume and a rich source of B vitamins, minerals, and fibers. Pea contains high amounts of a health-protective polyphenol called coumestrol, which has been recognized for its ability to protect from stomach cancer. A study in Mexico City determined 2 milligrams per day of this coumestrol can prevent stomach cancer and a cup of peas has at least 10 milligrams.[17] Pea also provides key antioxidant and anti-inflammatory benefits. Compared to hard dry legumes, fresh peas have lower levels of lectins and they can easily be deactivated through cooking.
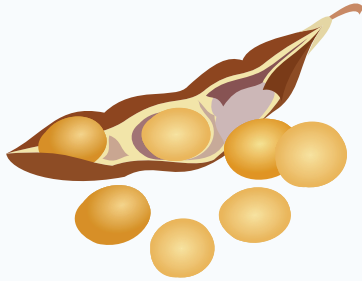
	Current Result	Previous Result	Reference Range
IgA	1.8 ⊖	4.4 ⊕	≤2.0
IgG	1.6 ⊖	1.6 ⊖	≤2.0
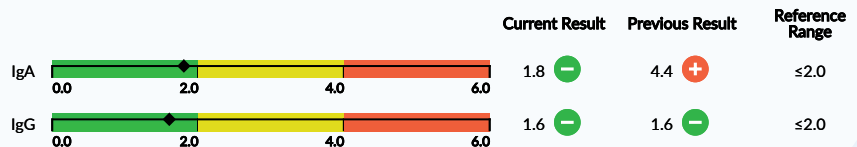
Peanut
(Botanical name: Arachis hypogaea)

Peanut contains high levels of mono- and poly-unsaturated fats, making it a great source of healthy fats and energy. Peanut is also rich in protein and a wide range of vitamins and minerals, such as biotin, vitamin E, and thiamine. The antioxidants in peanuts have been linked to reducing risk of heart disease and gallstones.[18] Unlike some other foods, the high levels of lectins in peanuts cannot be reduced by heating.[19] Peanut lectins were also proven to increase growth of cancer cells in a test-tube study, in which peanut agglutinin appeared in blood circulation after peanut ingestion and promoted cancer cell metastatis.[20] As metastasis accounts for the majority of cancer-associated fatality, cancer patients may want to consider avoiding regular consumption of peanuts.
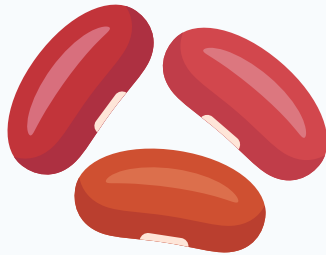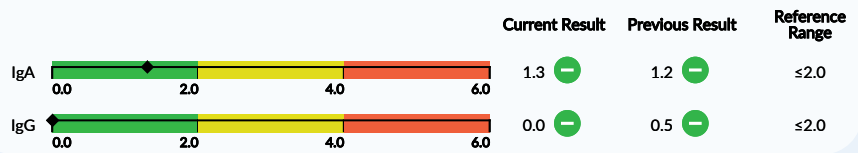
	Current Result	Previous Result	Reference Range
IgA	1.7 ⊖	0.4 ⊖	≤2.0
IgG	5.9 ⊕	1.4 ⊖	≤2.0

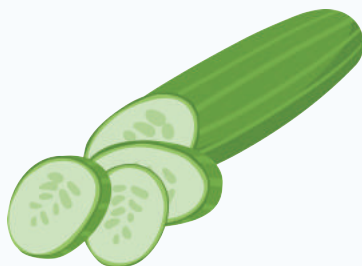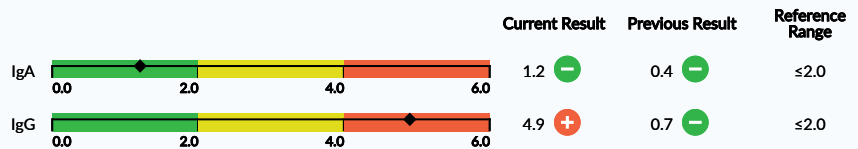| LAST NAME	FIRST NAME	MIDDLE NAME	GENDER	DATE OF BIRTH	ACCESSION ID
TESTNAME	PATIENT		FEMALE	1980-10-10	1512010000

Soybeans are among the highest quality plant-based proteins, which makes them particularly important for vegetarians. Soybeans are also rich in vitamins and minerals, especially molybdenum, phosphorus, and thiamine. Soybeans have been shown to help lower cholesterol and reduce the risk of developing obesity, type 2 diabetes, and even cancers.[21] The high levels of lectins in soybeans are almost completely deactivated when boiling at 212°F (100°C) for at least 10 minutes.

Soybean
(Botanical name: Glycine max)

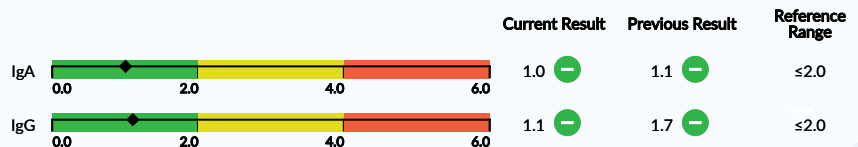|	Current Result	Previous Result	Reference Range
IgA	1.3	1.2	≤2.0
IgG	0.0	0.5	≤2.0

Kidney beans are low in fat and rich in complex carbohydrates, minerals, proteins, and vitamins. Its nutrition has been linked to reduced risk of various cancers, heart disease, and diabetes. However, raw red kidney beans contain high levels of a lectin called phytohaemagglutinin (PHA) in the seeds. As few as four or five raw beans can trigger symptoms (e.g., vomiting, diarrhea, abdominal pain) within 1 to 3 hours of ingestion.[22] A hemagglutinating unit (hau) is a measure of lectin content. In their raw form, red kidney beans contain 20,000–70,000 hau. Once they're thoroughly cooked, they contain only 200–400 hau, which is considered a safe level.

Kidney bean
(Botanical name: Phaseolus vulgaris)

	Current Result	Previous Result	Reference Range
IgA	1.2	0.4	≤2.0
IgG	4.9	0.7	≤2.0

Cucumber contains mostly water, but some important nutrients. The flesh is rich in vitamins and folic acid, while the hard skin is rich in fiber and a range of minerals. Its silica content contributes greatly to strengthening connective tissues and the ascorbic and caffeic acids can prevent water loss (e.g., applying topically to burns and dermatitis). Cucumber contains problematic lectins which can be greatly reduced by fermentation and thorough cooking.

Cucumber
(Botanical name: Cucurbita sativus)

	Current Result	Previous Result	Reference Range
IgA	1.0	1.1	≤2.0
IgG	1.1	1.7	≤2.0

| LAST NAME	FIRST NAME	MIDDLE NAME	GENDER	DATE OF BIRTH	ACCESSION ID
TESTNAME	PATIENT		FEMALE	1980-10-10	1512010000

# AQUAPORINS

Corn
(Botanical name: Zea mays)

Corn primarily provides carbohydrate calories, with a small amount of protein. This grain is also rich in vitamins and minerals. Its high fiber content can help prevent digestive ailments such as constipation and hemorrhoids and even colorectal cancer. The antioxidant components act as anti-carcinogenic agents and may prevent Alzheimer's disease. However, corn shares a similar protein with an autoimmune target site of nerve tissue called aquaporin. It is recommended to follow a diet free of corn for patients with neurological autoimmunity. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

	Current Result	Previous Result	Reference Range
IgA	1.7	0.3	≤2.0
IgG	1.1	0.9	≤2.0
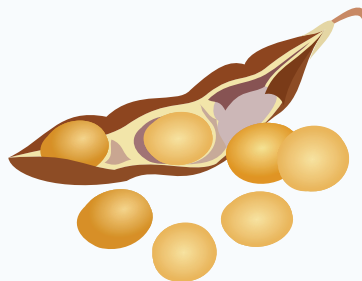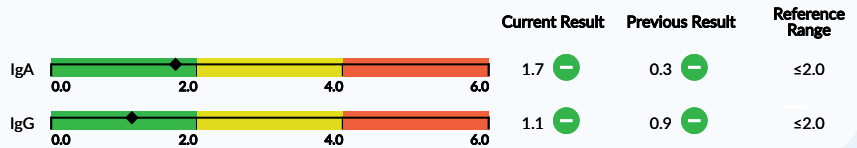
Soybean
(Botanical name: Glycine max)

Soybeans are among the highest quality plant-based proteins, which makes them particularly important for vegetarians. Soybeans are also rich in vitamins and minerals, especially molybdenum, phosphorus, and thiamine. Soybeans have been shown to help lower cholesterol and reduce the risk of developing obesity, type 2 diabetes, and even cancers. Soybeans also share a similar antigen with aquaporin which is an autoimmune target site of nerve tissue. A diet free of soybeans for patients with neurological autoimmunity is recommended. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

	Current Result	Previous Result	Reference Range
IgA	3.0	0.6	≤2.0
IgG	1.6	1.3	≤2.0
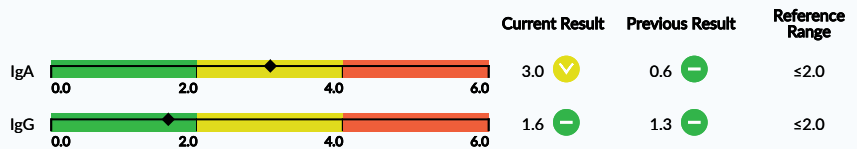
LAST NAME	FIRST NAME	MIDDLE NAME	GENDER	DATE OF BIRTH	ACCESSION ID
TESTNAME	PATIENT		FEMALE	1980-10-10	1512010000

## Spinach
(Botanical name: Spinacia oleracea)

Spinach is a super-food loaded with iron, vitamins, and minerals in a low-calorie package. Dark leafy greens such as spinach are important for skin, hair, and bone health. Spinach has been shown to help improve blood glucose control in diabetes patients, lower risk of cancer, reduce blood pressure, and lower the risk of developing asthma. Amino acid sequence similarities between spinach and an autoimmune target site of nerve tissue have been observed.[23] Therefore, a diet free of spinach is suggested for neurological autoimmunity patients. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

	Current Result	Previous Result	Reference Range
IgA	0.6 ⊖	2.5 ⊘	≤2.0
IgG	5.1 ⊕	0.7 ⊖	≤2.0
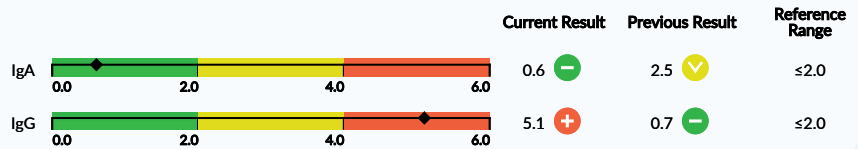
Tobacco
(Botanical name: Nicotiana)

Tobacco is a product prepared from curing the leaves of tobacco plants. Tobacco contains the alkaloid nicotine, a stimulant, and harmala alkaloids, which are natural forms of monoamine oxidase inhibitors (MAOIs) and cause central nervous system stimulation. Tobacco use is a risk factor for many diseases, especially those affecting the heart, liver, lungs, as well as many cancers. In 2008, the World Health Organization named tobacco as the world's single greatest preventable cause of death. High sequence similarities occur between tobacco and aquaporin which leads to the production of cross reactive antibodies against the autoimmune target site of nerve tissue. It is recommended to quit smoking and chewing tobacco in individuals with tobacco aquaporin antibodies. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

	Current Result	Previous Result	Reference Range
IgA	0.9 ⊖	1.0 ⊖	≤2.0
IgG	1.7 ⊖	0.9 ⊖	≤2.0
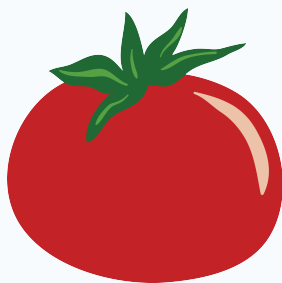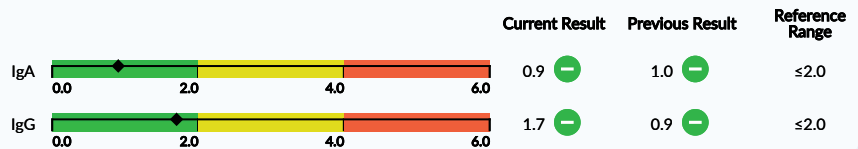
Tomato
(Botanical name: Lycopersicon esculentum)

Tomatoes, as members of the nightshade family, are high in fiber and vitamin C. Tomatoes provide a good source of potassium, folate, and vitamin K1. The antioxidant lycopene in tomatoes has been found to reduce inflammation, heart disease, and may even protect against cancer. Aquaporins from tomatoes show similarity to the brain Aquaporin 4 (AQR-4). The antibodies against tomato aquaporins might induce cross-reactivity to human AQR-4 and therefore, may have some connection to neuroautoimmune disorders. Therefore, a tomato free diet may be appropriate for individuals with neurological autoimmunity. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

|	Current Result	Previous Result	Reference Range
IgA	1.0 ⊖	0.7 ⊖	≤2.0
IgG	0.6 ⊖	0.6 ⊖	≤2.0

Potato
(Botanical name: Solanum tuberosum)

Potatoes belong to the nightshade family and contain high levels of potassium, which has been shown to decrease the risk of heart disease. Potato skins are particularly rich in an antioxidant component called chlorogenic acid, which has been associated with a reduction in the risk of heart disease, type 2 diabetes, and Alzheimer's disease. Antigenic mimicry by potato aquaporins to human aquaporins can lead to the production of cross reactive antibodies against human AQR-4, an aquaporin found in the brain. This could lead to autoimmune neurological disorders. Therefore, avoiding potatoes is suggested for patients with neurological autoimmunity. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

	Current Result	Previous Result	Reference Range
IgA	0.5	1.4	≤2.0
IgG	1.2	0.1	≤2.0
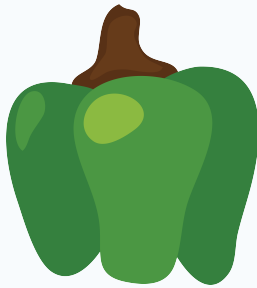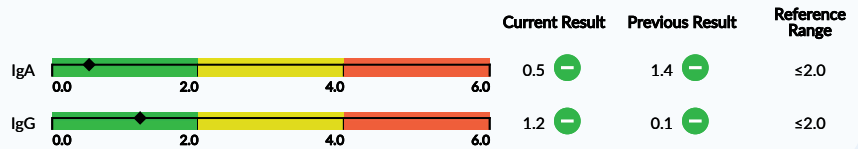
Bell pepper
(Botanical name: Capsicum annuum)

Bell peppers are members of the nightshade family. Bell peppers are rich in vitamins and minerals. For instance, a green bell pepper contains more than twice the vitamin C of an orange. The vitamin K (phylloquinone) content in bell peppers has been shown to affect blood coagulation and protect against osteoporosis. But, bell pepper is also shown to be analogous to human aquaporin which is an autoimmune target site. This could lead to the development of many autoimmune neurological disorders. Hence, it is advisable to avoid bell peppers for neurological autoimmunity patients. For a comprehensive testing of neural autoantigens, consider running the Vibrant Neural Zoomer panel.

	Current Result	Previous Result	Reference Range
IgA	1.0	0.7	≤2.0
IgG	1.5	0.7	≤2.0
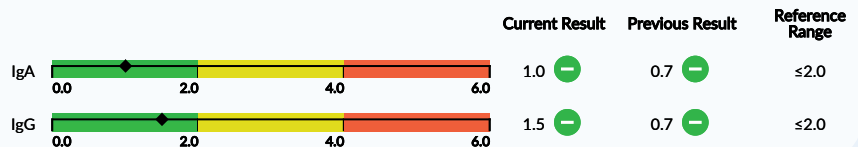
Key Terms/Glossary

Agglutinin

An agglutinin is a substance that causes particles to coagulate to form a thickened mass.

Alzheimer's disease

Alzheimer's disease is a chronic neurodegenerative disease, which is the cause of 60% to 70% of cases of dementia. The most common early symptom is difficulty in remembering recent events (short-term memory loss). As the disease advances, symptoms can include problems with language, disorientation (including easily getting lost), mood swings, loss of motivation, not managing self-care, and behavioral issues.

Antibody

An antibody, also known as an immunoglobulin (Ig), is a large, Y-shaped protein produced mainly by plasma cells that is used by the immune system to neutralize pathogens such as pathogenic bacteria and viruses.

Antigen

An antigen is a molecule capable of inducing an immune response (to produce an antibody) in the host organism. Sometimes antigens are part of the host itself in an autoimmune disease.

Autoimmunity

Autoimmunity is the system of immune responses of an organism against its own healthy cells and tissues. Prominent examples include celiac disease, type 1 diabetes, sarcoidosis, systemic lupus erythematosus (SLE), Sjögren's syndrome, rheumatoid arthritis (RA), and multiple sclerosis (MS). Autoimmune diseases are very often treated with steroids.

Axonal damage

Axonal damage is a brain injury in which damage in the form of extensive lesions in white matter tracts occurs over a widespread area. Axonal damage is one of the most common and devastating types of traumatic brain injury, and is a major cause of unconsciousness and persistent vegetative state after severe head trauma.

Demyelination

A demyelinating disease is any condition that results in damage to the protective covering that surrounds nerve fibers in brain, optic nerves and spinal cord. When the myelin sheath is damaged, nerve impulses slow or even stop, causing neurological problems.

Diabetes

Diabetes is a disease in which blood glucose or blood sugar levels are too high. Glucose comes from foods and Insulin is a hormone that helps the glucose get into cells to give them energy. With type 1 diabetes, the body does not make insulin. With type 2 diabetes, the more common type, the body does not make or use insulin well.

Dysbiosis

Dysbiosis is a term for a microbial imbalance or maladaptation on or inside the body, such as an impaired microbiota. Dysbiosis is commonly to be associated with periodontal disease, inflammatory bowel disease, chronic fatigue syndrome, obesity, cancer, bacterial vaginosis, and colitis.

Key Terms/Glossary

Gallstones

Gallstones are hardened deposits of digestive fluid that can form in the gallbladder.

Leaky gut

Leaky gut, also known as "intestinal permeability," is a condition in which the lining of the small intestine becomes damaged, causing undigested food particles, toxic waste products and bacteria to "leak" through gaps in the intestinal barrier and enter the blood stream.

Mannose

Mannose is a sugar monomer of the aldohexose series of carbohydrates. Mannose is important in human metabolism, especially in the glycosylation of certain proteins.

Metastasis

Metastasis is a pathogenic agent's spread from an initial or primary site to a different or secondary site within the host's body. It is typically spoken of as such spread by a cancerous tumor.

Necrosis

Necrosis is a form of cell injury which results in the premature death of cells in living tissue by autolysis.

Neuromyelitis optica

Neuromyelitis optica, also known as Devic's disease or Devic's syndrome, is a heterogeneous condition consisting of the simultaneous inflammation and demyelination of the optic nerve (optic neuritis) and the spinal cord (myelitis).

Nightshade

Nightshade vegetables are members of the family Solanaceae. Common nightshades include white (but not sweet) potatoes, eggplant, tomatoes, and peppers, both the eye-watering chilies and the sweeter bell peppers. Edible nightshade plants also include any spices made from peppers, like paprika, red pepper flakes, and cayenne pepper (not black pepper).

Osteoporosis

Osteoporosis causes bones to become weak and brittle — so brittle that a fall or even mild stresses such as bending over or coughing can cause a fracture.

Prolamin

Prolamin is a group of plant storage proteins having a high proline content and found in the seeds of cereal grains.

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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.

Quantification of specific IgG and IgA antibodies is not FDA- recognized diagnostic indicator of allergy.

Lectin and Aquaporin sensitivity 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 antigen 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.

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