



# IgG Food Antibody Assessment (Serum)



63 Zillicoa Street  
Asheville, NC 28801  
© Genova Diagnostics

Patient: **SAMPLE**  
**PATIENT**

DOB:

Sex:

MRN:

## IgG Food Antibody Results

Dairy	Vegetables	Fish/Shellfish	Nuts and Grains
Casein VL	Alfalfa 2+	Clam 0	Almond VL
Cheddar cheese 0	Asparagus 3+	Cod 1+	Buckwheat 3+
Cottage cheese 1+	Avocado 0	Crab 3+	Corn 1+
Cow's milk 1+	Beets 0	Lobster 3+	Corn gluten 2+
Goat's milk VL	Broccoli 1+	Oyster VL	Gluten VL
Lactalbumin 1+	Cabbage 1+	Red snapper 0	Kidney bean 1+
Yogurt VL	Carrot 0	Salmon 0	Lentil 2+
<b>Fruits</b>	Celery 0	Sardine 0	Lima bean 2+
Apple VL	Cucumber 1+	Shrimp 2+	Oat VL
Apricot 0	Garlic 0	Sole 0	Peanut VL
Banana 3+	Green Pepper VL	Trout 0	Pecan 2+
Blueberry 1+	Lettuce 1+	Tuna 0	Pinto bean VL
Cranberry 3+	Mushroom 1+	<b>Poultry/Meats</b>	Rice 1+
Grape VL	Olive 1+	Beef 0	Rye VL
Grapefruit 1+	Onion 0	Chicken 0	Sesame 3+
Lemon 2+	Pea VL	Egg white 1+	Soy 0
Orange 1+	Potato, sweet 0	Egg yolk 1+	Sunflower seed VL
Papaya 0	Potato, white 0	Lamb 0	Walnut 1+
Peach 0	Spinach VL	Pork 0	Wheat VL
Pear 0	String bean VL	Turkey 0	<b>Miscellaneous</b>
Pineapple 3+	Tomato VL		Yeast 1+
Plum VL	Zucchini VL		Cane sugar VL
Raspberry 0			Chocolate 1+
Strawberry 0			Coffee 1+
<b>Total IgE</b>			
Inside  Outside  Reference Range			
Total IgE ♦			

0	None Detected	VL	Very Low	1+	Low	2+	Moderate	3+	High
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- The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ♦, the assay has not been cleared by the U.S. Food and Drug Administration.
- Total IgE level may have clinical significance regardless of specific antibody levels.
- Increasing levels of antibody detected suggest an increasing probability of clinical reactivity to specific foods.
- The Elimination Diet commentary is specific to IgG results only. Allergens inducing an IgE response should be completely avoided.

<b>Laboratory Comments</b>

# Summary of IgG Test Results

## Reactive / Non-Reactive Foods

### 3+ High

Asparagus	Banana	Buckwheat	Coconut
Crab	Cranberry	Curry	Garbanzo
Ginger	Lobster	Pineapple	Sesame
Vanilla			

### 2+ Moderate

Alfalfa	Bean sprout	Cashew	Corn gluten
Fennel	Lemon	Lentil	Lima bean
Oat bran	Pecan	Shrimp	Watermelon
Wild rice			

### 1+ Low

Blueberry	Broccoli	Cabbage	Chocolate
Cod	Coffee	Corn	Cottage cheese
Cow's milk	Cucumber	Cumin	Egg white
Egg yolk	Grapefruit	Kidney bean	Lactalbumin
Lettuce	Marjoram	Mushroom	Olive
Orange	Pistachio	Rice	Thyme
Walnut	Wheat bran	Yeast	

### VL Very Low

Allspice	Almond	Apple	Basil
Black Pepper	Cane sugar	Cantaloupe	Casein
Cayenne	Cinnamon	Cloves	Filbert
Flax seed	Gluten	Goat's milk	Grape
Green pepper	Horseradish	Millet	Oat
Oyster	Paprika	Parmesan cheese	Pea
Peanut	Pinto bean	Plum	Rye
Sage	Spinach	String bean	Sunflower seed
Tomato	Wheat	Yogurt	Zucchini

### 0 None Detected

Apricot	Artichoke	Avocado	Bay leaf
Beef	Beets	Carrot	Celery
Cheddar cheese	Cherry	Chicken	Clam
Dill	Garlic	Kamut	Lamb
Mung bean	Mustard	Navy bean	Nutmeg
Onion	Oregano	Papaya	Parsley
Peach	Pear	Peppermint	Pork
Potato, sweet	Potato, white	Raspberry	Red Snapper
Rosemary	Safflower	Salmon	Sardine
Sole	Soy	Strawberry	Triticale
Trout	Tuna	Turkey	

## Commentary

### Overview

**Immunoglobulin G (IgG) antibodies** that elicit an immune response to food are in a class distinct from Immunoglobulin E (IgE) food allergy reactions. IgG-mediated food responses are described as delayed hypersensitivity reactions and have been associated in the peer-reviewed literature with an array of common clinical conditions including migraine, obesity, asthma, autoimmune diseases, and irritable bowel syndrome.

#### **IgG Testing: Factors to Consider**

IgG testing can be very useful in screening foods that a person is eating on a regular basis and which may be causing adverse reactions. However, it is possible to have adverse reactions to foods with low or non-detected levels of IgG. Because the IgG profile measures exposure of the immune system to food antigens, performing this test on a patient who is not consuming a particular food or who is taking a drug with known ability to suppress immune function (i.e. steroids) may result in the test not showing a positive reaction, potentially leading to a false negative result for the particular food. Be advised that if the patient is already on an elimination diet due to known food reactions, a negative result on an IgG food antibody profile does not necessarily mean that they can freely eat the food without experiencing symptoms.

#### **IgG Results Interpretation**

The amount of IgG antibodies is measured using a semi-quantitative ELISA assay procedure. The relative degrees of IgG present for each food are reported using a semi-quantitative level; None Detected (0), VL (very low), Low (1+), Moderate (2+) or High (3+). The degree of reactivity may not correlate with the severity of patient's response, therefore clinical correlation is advised as it can help direct treatment.

#### **Clinical Management of Reactive IgG Foods: Elimination Diet**

The purpose of an elimination diet is to pinpoint symptom-triggering foods that may be the root cause of and/or perpetuating chronic health issues. This diet is specific to food sensitivities that elicit an Immunoglobulin G (IgG) response and not those defined as classic (IgE-mediated) food allergy reactions. An elimination diet is a strategic process which depends on the oversight of the healthcare provider to ensure that a patient's nutritional requirements - macronutrient, micronutrient, and caloric needs - are adequate.

### Four-Phases of an Elimination Diet



#### **PHASE 1 – PREPARATION**

A patient's clinical presentation and the IgG Food Antibody Assessment results typically determine which food(s) to temporarily remove from the diet. The average time frame for an elimination diet is 1 to 3 months. It is optimal to work with the patient to determine a start and end date for the elimination diet. Patient guidance around preparation ahead of the start date is important to ensure success. These include: (1) encouraging the patient to remove offending foods from the home and adjust grocery shopping accordingly; (2) providing the patient with resources that advance meal preparation, such as recipe books or reputable websites. Directing the patient to record foods consumed, date of consumption/elimination, and any notable changes in symptoms in a food journal can help track the progress of the diet.

## Commentary



### PHASE 2 – ELIMINATION

It is important to ensure the patient avoids those foods which resulted in a demonstrable reaction, either in whole food forms or as ingredients in other prepared foods to gain the greatest benefit. For patients unable to eliminate all reactive foods from their diet, focusing on the foods that elicited a stronger reaction (i.e.: 2+ and 3+) may be considered for an elimination diet. Practitioners may also encourage elimination of a complete food group when the patient shows reactivity to all foods tested within that group.



### PHASE 3 – REINTRODUCTION

The reintroduction of eliminated foods is done one food at a time while monitoring for any adverse reaction. The patient should consume the test food several times throughout the day for several days. If symptoms occur with reintroduction, the patient should be instructed to remove that food once again and to evaluate whether the symptoms diminish over the next few days following elimination. Signs which may indicate an IgG food reaction include the following: headache, itching, bloating, fatigue, diarrhea or constipation, and indigestion. If the food does not cause symptoms during the reintroduction phase, it can be added back into the diet. The patient should continue this process with each food eliminated.

**CAUTION:** *All patients warrant counseling related to signs and management of immediate hypersensitivity reactions prior to food reintroduction following an elimination diet. If reintroduction of a food causes an immediate allergic reaction (i.e. swelling of face, mouth, tongue, etc.; wheezing, rash/hives, or other allergic symptoms), it is imperative that the patient be treated as soon as possible. Following resolution of the immediate hypersensitivity reaction, the patient should be instructed to completely avoid consumption of that food.*



### PHASE 4 – LONG TERM MANAGEMENT

An elimination diet based on food sensitivity testing is part of a comprehensive approach to overall gastrointestinal health. Based on the test results and the complete clinical presentation of the patient, a long-term plan is usually developed utilizing the results of the reintroduction phase. Clinicians may also consider assessing and treating intestinal permeability, as gut barrier integrity is important for proper immune responses to foods. Nutrients that have been found to support intestinal barrier and decrease potential inflammation are glutamine, vitamin A, vitamin D, essential fatty acids (Omega-3), probiotics, and butyrate. Botanicals that can also be considered to assist with intestinal health are slippery elm, deglycyrrhizinated licorice (DGL), Aloe vera extract, and marshmallow root.



# IgE Food Antibody Assessment



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Asheville, NC 28801  
© Genova Diagnostics

Patient: **SAMPLE  
PATIENT**

DOB:

Sex:

MRN:

## IgE Food Antibody Results

	RESULT kU/L	CLASS	INDICATOR		RESULT kU/L	CLASS	INDICATOR
<b>Grains</b>				<b>Nuts</b>			
Buckwheat	<0.24	0/1	<input type="checkbox"/>	Almond	<0.24	0/1	<input type="checkbox"/>
Corn	<0.24	0/1	<input type="checkbox"/>	Brazil nut	<0.24	0/1	<input type="checkbox"/>
Oat	<0.24	0/1	<input type="checkbox"/>	Coconut	<0.24	0/1	<input type="checkbox"/>
Rice	<0.24	0/1	<input type="checkbox"/>	Hazelnut	<0.24	0/1	<input type="checkbox"/>
Sesame	<0.24	0/1	<input type="checkbox"/>	Peanut	<0.24	0/1	<input type="checkbox"/>
Soybean	<0.24	0/1	<input type="checkbox"/>	<b>Seafood</b>			
Wheat	<0.24	0/1	<input type="checkbox"/>	Blue mussel	<0.24	0/1	<input type="checkbox"/>
<b>Dairy</b>				Codfish	<0.24	0/1	<input type="checkbox"/>
Egg white	<0.24	0/1	<input type="checkbox"/>	Salmon	<0.24	0/1	<input type="checkbox"/>
Cow's milk	<0.24	0/1	<input type="checkbox"/>	Shrimp	<0.24	0/1	<input type="checkbox"/>
				Tuna	<0.24	0/1	<input type="checkbox"/>

## Total IgE

	Inside	Outside	Reference Range
Total IgE	<input type="text" value=""/>	<input type="text" value="520.0"/>	<=87.0 IU/mL

- IgE levels must be used in conjunction with the clinical picture and are not intended to be independently diagnostic.
- The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. All assays are cleared by the U.S. Food and Drug Administration.
- Total IgE level may have clinical significance regardless of specific antibody levels.
- Increasing levels of antibody detected suggest an increasing clinical reactivity to specific foods.

## Key

Class	kU/L	Levels of Specific IgE	Indicator
0/1	<=0.24	Undetectable or Equivocal	<input type="checkbox"/>
I	0.25 - 0.39	Low	<input type="checkbox"/>
II	0.4 - 1.29	Moderate	<input type="checkbox"/>
III	1.3 - 3.89	High	<input type="checkbox"/>
IV	3.9 - 14.99	Very High	<input type="checkbox"/>
V	15 - 24.99	Very High	<input type="checkbox"/>
VI	>=25	Very High	<input type="checkbox"/>

## Laboratory Comments



# IgG Vegetarian Food Profile



63 Zillicoa Street  
Asheville, NC 28801  
© Genova Diagnostics

Patient: **SAMPLE PATIENT**

DOB:

Sex:

MRN:

<i>IgG Vegetable Food Results</i>					
Artichoke	0	Garbanzo	3+	Parmesan cheese	VL
Bean sprout	2+	Filbert	VL	Pistachio	1+
Cantaloupe	VL	Kamut	0	Safflower	0
Cashew	2+	Millet	VL	Triticale	0
Cherry	0	Mung bean	0	Watermelon	2+
Coconut	3+	Navy bean	0	Wheat bran	1+
Flax seed	VL	Oat bran	2+	Wild rice	2+

<i>Total IgE</i>			
	Inside	Outside	Reference Range
Total IgE ♦		520.0	<=87.0 IU/mL

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- Increasing levels of antibody detected suggest an increasing probability of clinical reactivity to specific foods.

- Total IgE level may have clinical significance regardless of specific antibody levels.

0	None Detected	VL	Very Low	1+	Low	2+	Moderate	3+	High
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*Laboratory Comments*



# IgG Spice Profile (Serum)



63 Zillicoa Street  
Asheville, NC 28801  
© Genova Diagnostics

Patient: **SAMPLE PATIENT**

DOB:

Sex:

MRN:

<i>IgG Spice Antibody Results</i>					
Allspice	VL		Curry	3+	
Basil	VL		Dill	0	
Bayleaf	0		Fennel	2+	
Black Pepper	VL		Ginger	3+	
Cayenne	VL		Horseradish	VL	
Cinnamon	VL		Marjoram	1+	
Cloves	VL		Mustard	0	
Cumin	1+		Nutmeg	0	
			Oregano	0	
			Paprika	VL	
			Parsley	0	
			Peppermint	0	
			Rosemary	0	
			Sage	VL	
			Thyme	1+	
			Vanilla	3+	

<i>Total IgE</i>			
	Inside	Outside	Reference Range
Total IgE ♦		520.0	<=87.0 IU/mL

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- Increasing levels of antibody detected suggest an increasing probability of clinical reactivity to specific foods.

- Total IgE level may have clinical significance regardless of specific antibody levels.

0		None Detected	VL		Very Low	1+		Low	2+		Moderate	3+		High
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*Lab Comments*



Patient: **SAMPLE  
PATIENT**

DOB:

Sex:

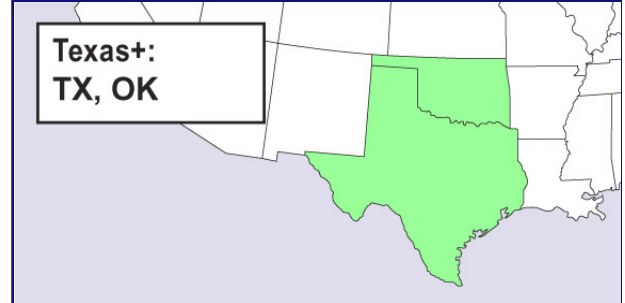
MRN:

### IgE Antibody Levels

INHALANT	RESULT	CLASS	INDICATOR
	kU/L		
<b>Trees</b>			
Maple	<0.24	0/1	<input type="checkbox"/>
Mountain Cedar	3.27	III	<input checked="" type="checkbox"/>
<b>Grasses</b>			
Bermuda Grass	0.67	II	<input type="checkbox"/>
June Grass (Kentucky Blue)	2.87	III	<input checked="" type="checkbox"/>
Perennial Rye Grass	3.57	III	<input checked="" type="checkbox"/>
<b>Weeds</b>			
Lamb's quarters	<0.24	0/1	<input type="checkbox"/>
English Plantain	<0.24	0/1	<input type="checkbox"/>
Rough Marsh Elder	<0.24	0/1	<input type="checkbox"/>
Giant Ragweed	<0.24	0/1	<input type="checkbox"/>
<b>Molds</b>			
Mold Generic	0.89	II	<input type="checkbox"/>
<b>Misc.</b>			
Cat dander	<0.24	0/1	<input type="checkbox"/>
Cockroach	<0.24	0/1	<input type="checkbox"/>
Dog dander	<0.24	0/1	<input type="checkbox"/>
Mite - D. farinae	0.57	II	<input type="checkbox"/>
Mite - D. microceras	0.77	II	<input type="checkbox"/>
Mite - D. pteronyssinus	0.41	II	<input type="checkbox"/>

### Lab Comments

### Inhalant Region



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### Total IgE

	Inside	Outside	Reference Range
Total IgE	<input type="checkbox"/>	<input checked="" type="checkbox"/> 520.0	<=87.0 IU/mL

### Key

Class	kU/L	Levels of Specific IgE	Indicator
0/1	<=0.24	Undetectable or Equivocal	<input type="checkbox"/>
I	0.25 - 0.39	Low	<input type="checkbox"/>
II	0.4 - 1.29	Moderate	<input type="checkbox"/>
III	1.3 - 3.89	High	<input checked="" type="checkbox"/>
IV	3.9 - 14.99	Very High	<input checked="" type="checkbox"/>
V	15 - 24.99	Very High	<input checked="" type="checkbox"/>
VI	>=25	Very High	<input checked="" type="checkbox"/>





Patient: **SAMPLE  
PATIENT**

DOB:

Sex:

MRN:

## IgE Mold Antibody Results

INHALANT	RESULT kU/L	CLASS	INDICATOR
Aspergillus fumigatus	<0.24	0/1	
Alternaria tenuis (Alternaria alternata)	3.12	III	
Candida albicans	<0.24	0/1	
Cladosporium herbarum	<0.24	0/1	
Curvularia lunata	0.36	I	
Epicoccum purpurascens	<0.24	0/1	
Fusarium moniliforme	<0.24	0/1	
Helminthosporium halodes	<0.24	0/1	
Mucor racemosus	<0.24	0/1	
Penicillium notatum	<0.24	0/1	
Phoma betae	0.4	II	
Pityrosporum orbiculare	0.42	II	
Rhizopus nigricans	0.53	II	
Stemphylium botryosum	0.81	II	
Trichoderma viride	0.25	I	

## Key

Class	kU/L	Levels of Specific IgE	Indicator
0/1	<=0.24	Undetectable or Equivocal	
I	0.25 - 0.39	Low	
II	0.4 - 1.29	Moderate	
III	1.3 - 3.89	High	
IV	3.9 - 14.99	Very High	
V	15 - 24.99	Very High	
VI	>=25	Very High	

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- Total IgE load may have clinical significance regardless of specific antibody levels.
- IgE levels must be used in conjunction with the clinical picture and are not intended to be independently diagnostic.

## Total IgE

	Inside	Outside	Reference Range
Total IgE			<=87.0 IU/mL

## Lab Comments

Blank area for lab comments.



Patient: **SAMPLE PATIENT**

DOB:

Sex:

MRN:

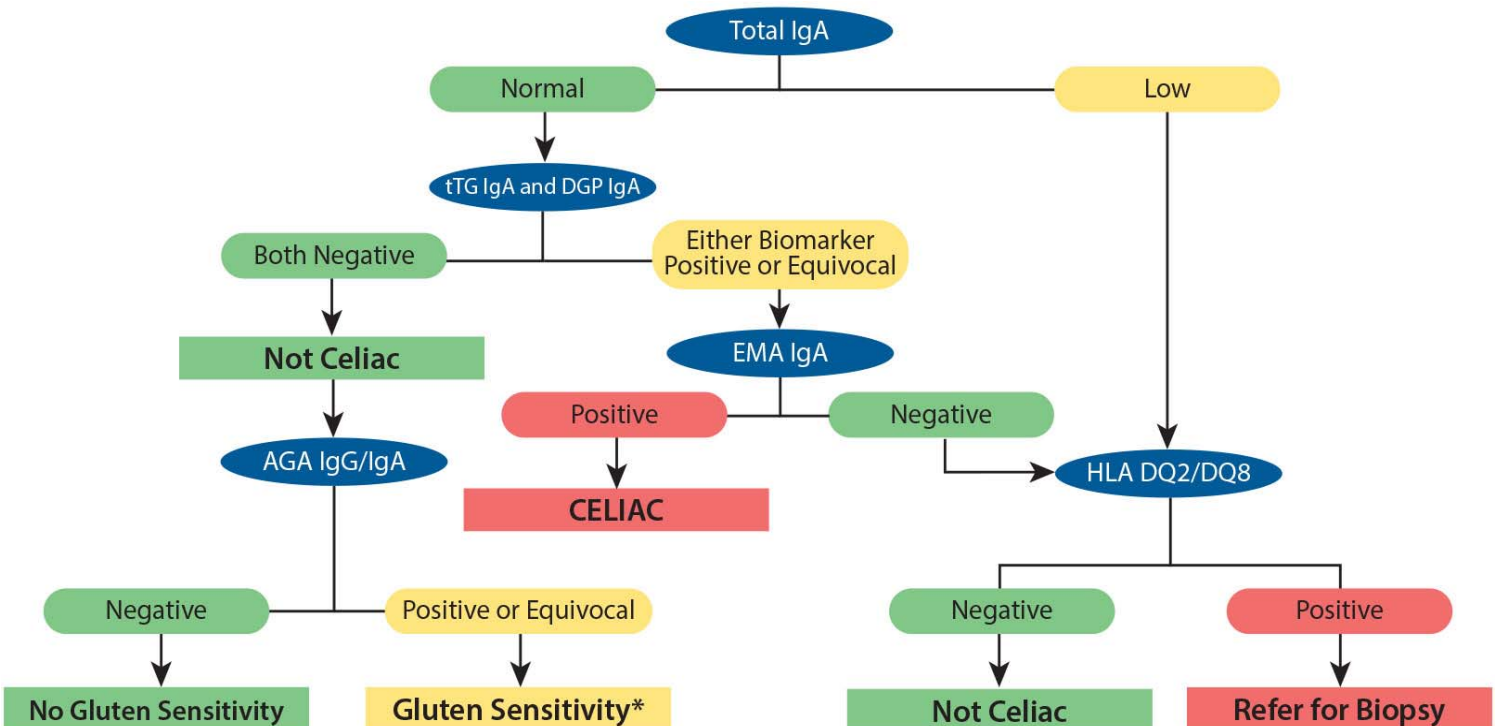
### 1006 Celiac & Gluten Sensitivities-Serum

#### Immunologic Markers

Biomarker	Result	Reference Range
Total IgA	114 Sufficient	68-514 mg/dL
Anti-Tissue Transglutaminase IgA (tTG IgA)	0.5 Negative	<=6.9 U/ml
Anti-Deamidated Gliadin IgA (DGP IgA)	0.6 Negative	<=6.9 U/ml
Anti-Gliadin IgA (AGA IgA)	0.6 Negative	<=6.9 U/ml
Anti-Gliadin IgG (AGA IgG)	0.4 Negative	<=6.9 U/ml

#### Interpretation

Patient results are normal. Clinical Correlation advised. A trial of a Gluten Free Diet may be required to exclude Gluten Sensitivity.



## Commentary

Methodology: FEIA, Immunoturbidometric and IFA (when EMA IgA testing is performed)

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ♦, the assay has been cleared by the U.S. Food and Drug Administration.

\*AGA IgG/IgA is positive in only about 50% of patients with Gluten Sensitivity. Therefore, clinical correlation is required and a trial of a Gluten Free Diet may be indicated to confirm diagnosis. Volta U, De Giorgio R. New understanding of gluten sensitivity. Nat Rev Gastroenterol Hepatol. 2012 Feb 28;9(5):295-9



Methodology: ELISA - enzyme-linked immunosorbent assay

## Zonulin Family Peptide

	Result		Reference Range
Zonulin Family Peptide, Serum	65.2	H	25.5-56.1 ng/mL

### Zonulin Family Peptide

This test is for research use only. Genova will not provide support on interpreting the test results. This test does not detect zonulin. The Scheffler paper suggests that the IDK kit may detect a zonulin family peptide, such as properdin.<sup>1</sup>

The performance characteristics of Zonulin Family Peptide have been verified by Genova Diagnostics, Inc. The assay has not been cleared by the U.S. Food and Drug Administration.

### References

1. Scheffler L, et al. Widely Used Commercial ELISA Does Not Detect Precursor of Haptoglobin2, but Recognizes Properdin as a Potential Second Member of the Zonulin Family. *Front Endocrinol.* 2018;9:22.