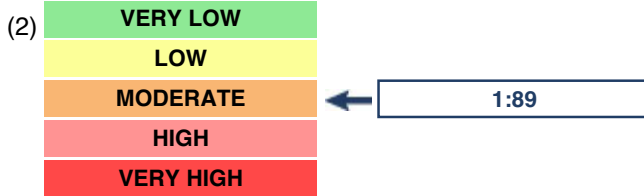


**Celiac Disease Genetic Markers**



\*These tests were performed using Polymerase Chain Reaction with Sequence Specific Primers (SSP-PCR) Technique.

**Genetic Markers - HLA-DQ Typing\***

HLA-DQ2.5		
DQA1*05		Negative
DQB1*02		Negative

HLA-DQ8		
DQA1*03		Positive
DQB1*0302		Positive

**HLA-DQ Typing Commentary**

**The Risk for Celiac Disease is 1:2518 (1)**

Patient has one of the HLA-DQ variants associated with Celiac Disease. More than 90% of Celiac patients carry either HLA-DQ2.5 or HLA-DQ8 or both. However, since almost 30% of general U.S population carry these variants, the presence of these are not an indication of Celiac Disease but only reflect a genetic predisposition for the disease.

(1) Megiorni F, Mora B, Bonamico M, Barbato M, Nenna R, et al: HLA-DQ and risk gradient for celiac disease. Hum Immunol 2009, 70:55-59.

(2) Megiorni F, Pizzuti, A. HLA-DQA1: HLA-DQB1 in Celiac Disease predisposition: practical implications of the HLA molecular typing.

**Crohn's Genetic Markers\***

<b>ATG16L1 (T300A)</b>	Homozygous Negative	Genes inherited from both parents do not have this variant (homozygous negative genotype).
<b>NOD2 (L1007fsinsC)</b>	Homozygous Negative	Genes inherited from both parents do not have this variant (homozygous negative genotype).
<b>NOD2 (R702W)</b>	Homozygous Negative	Genes inherited from both parents do not have this variant (homozygous negative genotype).
<b>NOD2 (G908R)</b>	Homozygous Negative	Genes inherited from both parents do not have this variant (homozygous negative genotype).

**Crohn's Comments**

Although there is an absence of the variants, the etiologies of inflammatory bowel disease (IBD) and Crohn's disease are highly complex and they can occur without a variant at the investigated sites.

(1) Aditya Murthy and Menno van Lookeren Campagne: Understanding Crohn's diseases through genetics. Cell Cycle 13:18, 2803-2804; September 15, 2014.

(2) Aditya Murthy et al: A Crohn's disease variant in Atg16l1 enhances its degradation by caspase 3. Nature, Vol 506, 27 February 2014.

(3) Denie K. Bohnen et al: Crohn's Disease-Associated NOD2 Variants Share a Signaling Defect in Response to Lipopolysaccharide and Peptidoglycan. Gastroenterology 2003;124:140-146.

\* This test was developed and its performance characteristics determined by Cell Science Systems. It has not been cleared or approved by the U.S. Food and Drug Administration.

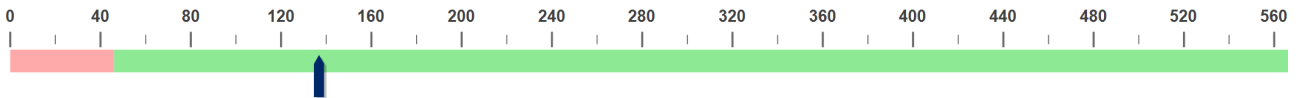
**Serologic Markers**

**Total IgA**

136.8

This analytical run was performed by Genova Diagnostics, 63 Zillicoa Street, Asheville, NC 2880; a laboratory certified under CLIA No. 34D0655571, in compliance with Clinical Laboratory Improvement Amendments (CLIA) standards.

Reference Range  
(46 - 431 mg/dL)



**Personalized Commentary**

NEGATIVE	WEAK POSITIVE/EQUIVOCAL	POSITIVE
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	< 4 units	4 - 10 units	> 10 units	REMARKS
Tissue transglutaminase (tTg) IgA	1			
	< 6 units	6 - 9 units	> 9 units	
Tissue transglutaminase (tTg) IgG	3			
	< 20 units	20 - 30 units	> 30 units	
Deamidated gliadin peptide (DGP) IgA	5			
Deamidated gliadin peptide (DGP) IgG	2			
	< 20 units	20 - 24.9 units	≥ 25 units	
Anti-Saccharomyces cerevisiae Antibodies (ASCA) IgA	15.4			
Anti-Saccharomyces cerevisiae Antibodies (ASCA) IgG			27.6	

**Antibody Markers Commentary**

A finding of tissue transglutaminase (tTG) IgA antibodies may be indicative for Celiac Disease. For patients with normal total IgA levels and negative tTG IgA antibodies results, an indication of Celiac Disease is very unlikely. However, it is important to remember that a certain percentage of patients with Celiac Disease may be seronegative. If the testing for tTG IgA is negative, but Celiac Disease is still suspected based on clinical presentation or even a strong family history, looking to the results of the DGP-IgA antibody test and the HLA DQ2.5/ DQ8 genetic typing would be appropriate. High values of ASCA (IgA or IgG) may be indicative of Crohn's Disease. Further evaluation by a Gastroenterologist is recommended especially if GI symptoms are present.

A Gluten Restricted Diet prior to testing may affect the antibody Result.

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