REPORT OF CELIAC DISEASE ASSOCIATION

Patient Name: Sally Health
Lab ID Number: 141250015
Ordering Physician: Dr. KCL
Date Sample Collected: 06/01/14
Date Sample Received: 06/03/14
Date Reported: 06/05/14

PATIENT’S HLA-DQ GENOTYPE:
DQB1*04, DQB1*06
DQA1*04, DQA1*01

Patient’s Result Interpretation:
Celiac-associated DQ markers: ABSENT
Genetic Risk for Celiac Disease Development: EXTREMELY LOW

INDICATIONS:
This individual is NEGATIVE for celiac-associated alleles. The Celiac Disease genetic risk based on the reported HLA-DQA/DQB genotype is approximately 1:2518 (<0.04 %). Considering a disease prevalence of 1:100 (1%), this individual has EXTREMELY LOW predisposition for Celiac Disease compared to the general population. Please see below for a graphical representation of the patient’s risk ratio.

BACKGROUND:
Celiac disease (CD) is a chronic gluten-intolerance that occurs in genetically predisposed individuals. In sensitive individuals, the ingestion of gluten causes chronic inflammation of the small intestinal mucosa leading to villous atrophy and nutrient malabsorption.

The prevalence of CD is estimated at about 1:100 in Caucasian population and it occurs more often in female than in male subjects with a gender ratio of about 2:1. Furthermore, gluten intolerance is more frequent in at-risk groups, such as first-degree relatives of patients as well as individuals with specific genetic syndromes (Down, Turner, Williams) or autoimmune diseases (type I diabetes, thyroiditis and multiple sclerosis).

Celiac is a multifactorial disorder in which specific HLA-DQA1 and HLA-DQB1 alleles represent the major genetic predisposition. HLA typing, however, does not have an absolute diagnostic value but allows assessing the CD relative risk. This means a positive test is indicative of genetic susceptibility but does not necessarily mean the disease development. A negative test has a more significant value because gluten intolerance rarely occurs in the absence of specific HL predisposing alleles.

Approximately 90% of CD patients present DQA1*05 and DQB1*02(DQ2.5); 5-10% carry DQA1*03 and DQB1*0302 (DQ8); about 5% of patients present DQ2.x molecules, encoded by the DQB1*02 at-risk allele in absence of the DQA1*05; and very rarely, CD patients carry different DQ molecules (DQx.x). The close association is due to the fact that these disease-associated HLA-DQ molecules expressed on antigen-presenting cells specifically bind gluten-derived peptides that are modified by the enzyme tTG and present them to intestinal CD4+ T cells. The resulting T cell response leads to the production of auto-antibodies directed against tTG and to the secretion of pro-inflammatory cytokines (mainly TNF-α and IFN-γ) with consequent mucosa atrophy and clinical manifestations.

For additional information about our Celiac Disease Testing, please visit www.kashihealth.com/genetic-services/celiac-disease.
HLA typing results are defined by amplification of genomic DNA using polymerase chain reaction (PCR) sequence specific oligonucleotide probes (SSOP) technique on the Luminex platform. DNA sequence based typing and/or sequence specific primers are used as supplemental methods. The test has been cleared by the U.S. Food and Drug Administration. Test systems and its performance characteristic is determined by the Kashi Clinical Laboratories and under the accreditation guidelines of the American Society for Histocompatibility and Immunogenetics (ASHI).

Reported and Reviewed By:

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CEO and Laboratory Director

REFERENCES:

2. Megiorni and Pizzuti, HLA-DQA1 and HLA-DQB1 in celiac disease predisposition: practical implications of the HLA molecular typing. J of Biomedical Science 2012, 19:88
6. Karell et al. HLA types in celiac disease patients not carrying the DQA1*05-DQB1*02(DQ2) heterodimer: results from the European genetics cluster of celiac disease. Hum Immunol 2003: 64:469-477