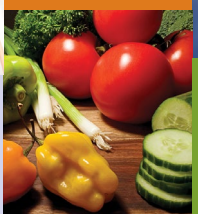
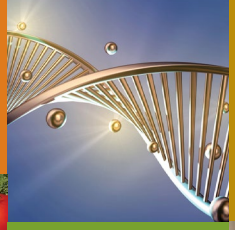
National Institute of Diabetes and Digestive and Kidney Diseases


# PROVIDER *Points*

# TESTING FOR CELIAC DISEASE

Serologic tests for celiac disease provide an effective first step in identifying candidates for intestinal biopsy.

If serologic or genetic tests indicate the possibility of celiac disease, a biopsy should be done promptly and before initiating any dietary changes. Genetic tests that confirm the presence or absence of specific genes associated with celiac disease may be beneficial in some cases.

## SEROLOGIC TESTS

Serologic tests look for three antibodies common in celiac disease:

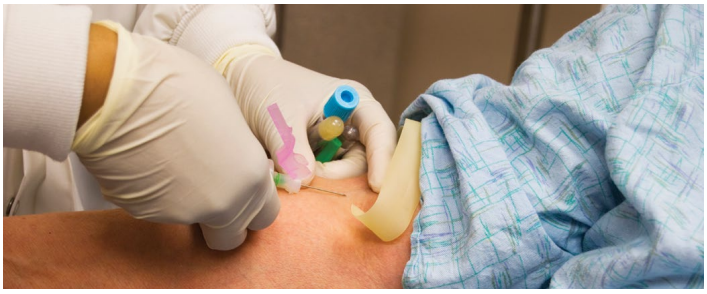
- anti-tissue transglutaminase (tTG) antibodies
- endomysial antibodies (EMA)
- deamidated gliadin peptide (DGP) antibodies

The most sensitive antibody tests are of the immunoglobulin A (IgA) class; however, immunoglobulin G (IgG) tests may be used in people with IgA deficiency. Panels are often used because no one serologic test is ideal. However, the tests included in a celiac panel vary by lab, and one or more may be unwarranted. Some reference labs—labs used for specialized tests—have developed cascades of tests in an attempt to minimize the use of less accurate tests whose automatic inclusion in a panel would add little or no sensitivity and/or detract from specificity. For accurate diagnostic test results, patients must be on a gluten-containing diet.

## tTG

The tTG-IgA test is an enzyme-linked immunosorbent assay (ELISA) test. The tTG-IgA test is the preferred screening method and has a sensitivity of 93 percent, yielding few false negative results. The tTG test also has a specificity of more than 98 percent.[1]

The performance of the tTG-IgA test may depend on the degree of intestinal damage, making the test less sensitive among people with milder celiac disease. In addition to screening,



the tTG test may be used to assess initiation and maintenance of a gluten-free diet.

Point-of-care tTG tests have been developed commercially; however, because of lower sensitivity and specificity, assay results may differ from those in the lab.

The tTG-IgG test is only useful in those subjects who have IgA deficiency, which is 1/400 of the general population or 2 to 3 percent of people with celiac disease.[2]

## EMA

The test for EMA-IgA is highly specific for celiac disease, with 99 percent accuracy.[1] The reason the test has a variable sensitivity of 70 to 100 percent may be due in part to the high technical difficulty in performing this test. EMA are measured by indirect immunofluorescent assay, a more expensive and time-consuming process than ELISA testing. In addition, the EMA test is qualitative, making the results more subjective than those for tTG. EMA is often used as an adjunctive test to the routine tTG-IgA test when EMA make celiac disease more certain.[3]

A jejunal biopsy may help diagnose patients who are EMA or tTG negative and suspected of having celiac disease.

## DGP

A new generation of tests that use DGP antibodies has sensitivity and specificity that is substantially better than the older gliadin tests. However, based on a meta-analysis of 11 studies, insufficient evidence exists to support the use of DGP over tTG or EMA tests. The tTG test is less expensive than the DGP test and offers better diagnostic performance.[4]

## IgA DEFICIENCY

If tTG-IgA or EMA-IgA is negative and celiac disease is still suspected, total IgA should be measured to identify selective IgA deficiency. In cases of IgA deficiency, tTG-IgG or DGP-IgG should be measured. DGP-IgG may be sensitive for celiac disease, and it is preferable to tTG-IgG if used in a cascade. DGP-IgG has reasonable sensitivity for celiac disease in IgA-sufficient as well as IgA-deficient patients.

## GENETIC SCREENING TESTS

Most people with celiac disease have gene pairs that encode for at least one of the human leukocyte antigen (HLA) gene variants, or alleles, designated *HLA-DQ2*—found in 95 percent of people with the disease—and *HLA-DQ8*. However, these alleles are found in about 30 to 35 percent of Caucasians, and most people with the variants do not develop celiac disease.[1] Negative findings for *HLA-DQ2* and *HLA-DQ8* make current or future celiac disease very unlikely in patients for whom other tests, including biopsy, do not provide a clear diagnostic result. An increased risk of developing celiac disease has recently been described in individuals who carry a new *HLA-G I* allele in addition to *HLA-DQ2*.[5]

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Clinical trials are part of clinical research and at the heart of all medical advances. Clinical trials look at new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about clinical trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at www.nih.gov/health/clinicaltrials. For information about current studies, visit www.ClinicalTrials.gov.

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