

Emerging evidence on the role of endomysial antibody (EMA) testing in celiac disease diagnosis

Evidence supporting streamlined serologic testing strategies in patients with positive anti-tTG IgA results

Celiac disease (CD) is a chronic immune-mediated enteropathy in which accurate and timely diagnosis is essential to reduce the risk of long-term complications.[1] Tissue transglutaminase IgA antibodies (tTG-IgA) are widely recognized as the primary serologic marker for CD due to their high diagnostic performance.[2–4]

While some diagnostic guidelines continue to recommend EMA testing as a confirmatory test,[2,4] particularly in borderline cases, emerging evidence suggests that EMA may provide limited additional diagnostic value when tTG-IgA results are already positive.[5–7]

A recent study published in ***Frontline Gastroenterology*** evaluated the clinical utility of EMA testing alongside tTG-IgA and reported limited incremental diagnostic benefit from EMA testing in both borderline and positive tTG-IgA cohorts.[8]

Footnote: Clinical practice should continue to follow applicable regional guidelines and local standards of care.

Key findings from Yau et al., *Frontline Gastroenterology* (2026)

Retrospective cohort of 554 CD patients and 33 non-CD patients tested for both tTG-IgA and EMA, before diagnosis:[8]



- EMA demonstrated low sensitivity and specificity in patients with borderline EliA™ Celikey tTG-IgA test results (7–10 EliA U/ml)
- No statistically significant association was observed between EMA status and biopsy-confirmed celiac disease in the borderline cohort (p=0.7341)
- Among patients with positive tTG-IgA (>10 EliA U/ml), EMA added minimal clinical utility due to high concordance with tTG positivity
- 61% (14/23) of EMA-negative patients with positive tTG-IgA still had confirmed celiac disease
- Authors concluded that routine EMA testing may not improve diagnostic decision-making when tTG-IgA is already positive

"EMA had low sensitivity in borderline cases and added no diagnostic value when tTG was positive."[8]

Tissue transglutaminase IgA antibodies remain the cornerstone serologic marker for CD

Multiple international studies and guideline reviews support the high diagnostic performance of anti-tTG IgA assays in celiac disease diagnosis

Evidence supporting tTG-IgA testing includes:

- High sensitivity across pediatric and adult populations[1–3]
- Strong predictive value at elevated titers[5,6,9,10]
- Support for no-biopsy diagnostic approaches in selected patient populations[3,6,10,11]
- Objective, commercially standardized assay formats suitable for routine and high-throughput laboratory testing[5,9]
- At high titer, concordance between tTG-IgA and EMA is high, reported as >98%[5,11,12]

The study by Yau et al. further reinforces prior evidence suggesting that EMA testing may offer **limited incremental benefit** when **robust tTG-IgA testing is already available.**[8]

Operational considerations of EMA testing

EMA testing has historically been considered highly specific for celiac disease; however, practical and analytical limitations have been reported

Published limitations of EMA testing include:

- Requirement for specialized expertise[2,5,9]
- Interobserver variability[1,6,9]
- Labor-intensive / lower workflow automation compared with FEIA-based tTG assays[3,9]
- Costly, requires specialized tissue substrate[2,9]

Yau et al. additionally noted that many laboratories have reduced or discontinued routine EMA testing because of **workflow complexity** and **limited incremental** diagnostic value.[8]

Automated EliA celiac disease testing solutions

The EliA celiac disease portfolio on Phadia Laboratory Systems supports standardized, automated serologic testing workflows for celiac disease diagnostics.

Available assays include:

- EliA™ Celikey IgA assay
- EliA™ Celikey IgG assay
- EliA™ Gliadin^{DP} IgA assay
- EliA™ Gliadin^{DP} IgG assay

Features of EliA FEIA assays include:

- Automated processing
- Objective quantitative results
- Wide range of instruments and capacities
- Integration across Phadia™ Laboratory Systems

The EliA Celikey IgA assay uses human recombinant tissue transglutaminase antigen and defines:[13]

- Negative: <7 EliA U/ml
- Equivocal: 7–10 EliA U/ml
- Positive: >10 EliA U/ml

Supporting evidence-based diagnostic pathways

As celiac disease diagnostic strategies continue to evolve, emerging evidence supports the value of streamlined serologic workflows centered on high quality anti-tTG IgA testing.[3,9]

Recent evidence from Yau et al. contributes to the growing body of literature evaluating the incremental clinical utility of EMA testing in patients with positive tTG-IgA results.[8]

Thermo Fisher Scientific remains committed to supporting laboratories with evidence-based, standardized testing solutions that support CD diagnosis while aligning with regional guidelines and standards of care.



References: 1. Sheppard AL, et al. Systematic review with meta-analysis: the accuracy of serological tests to support the diagnosis of coeliac disease. Aliment Pharmacol Ther. 2022;55(5):514-527. **2.** Husby S, et al. European Society Paediatric Gastroenterology, Hepatology and Nutrition Guidelines for Diagnosing Coeliac Disease 2020. J Pediatr Gastroenterol Nutr. 2020;70(1):141-156. **3.** Al-Toma A, et al. European Society for the Study of Coeliac Disease 2025 Updated Guidelines on the Diagnosis and Management of Coeliac Disease in Adults. Part 1: Diagnostic Approach. United European Gastroenterol J. 2025;13(10):1855-1886. **4.** Rubio-Tapia A, et al. American College of Gastroenterology Guidelines Update: Diagnosis and Management of Celiac Disease. Am J Gastroenterol. 2023;118(1):59-76. **5.** Ben-Tov A, et al. Endomysial antibodies or anti-tissue transglutaminase type 2 IgA antibodies as a confirmatory test in children with celiac disease. J Pediatr Gastroenterol Nutr. 2025;80(1):147-150. **6.** Ciacci C, et al. Serum anti-tissue transglutaminase IgA and prediction of duodenal villous atrophy in adults with suspected coeliac disease without IgA deficiency (Bi.A.CeD): a multicentre, prospective cohort study. Lancet Gastroenterol Hepatol. 2023;8(11):1005-1014. **7.** Brown SD, et al. Is there utility in testing IgA-endomysial antibodies in patients with weak-positive or equivocal IgA-tissue transglutaminase antibodies in the diagnosis of coeliac disease? A critique of current NICE guidance (NG20). Ann Clin Biochem. 2026;63(1):32-39. **8.** Yau A, et al. Anti-endomysial antibody detection is of no benefit as an adjunct to IgA anti-tissue transglutaminase antibodies in the serological diagnosis of coeliac disease. Frontline Gastroenterol. 2026;17:e103344. **9.** Penny HA, et al. Progress in the serology-based diagnosis and management of adult celiac disease. Expert Rev Gastroenterol Hepatol. 2020;14(3):147-154. **10.** Penny HA, et al. Accuracy of a no-biopsy approach for the diagnosis of coeliac disease across different adult cohorts. Gut. 2021;70(5):876-883. **11.** Werkstetter KJ, et al. Accuracy in Diagnosis of Celiac Disease Without Biopsies in Clinical Practice. Gastroenterology. 2017;153(4):924-935. **12.** Ezra S, et al. B-062 A Self-Imposed Gray Area? Analysis of Anti-Tissue Transglutaminase and Anti-Endomysial Antibody Discordance in a Celiac Disease Screening Serology Testing Algorithm. Clin Chem. 2023;69(Suppl 1):hvad097.402. **13.** EliA Celikey IgA Directions for Use. 2025; 250-5517-026 / UK.

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