



PEER-REVIEW REPORT

Name of journal: *Artificial Intelligence in Gastroenterology*

Manuscript NO: 105682

Title: Precision Medicine in Celiac Disease: a step ahead !

Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 08238819

Position: Peer Reviewer

Academic degree and professional title: PhD

Reviewer's Country/Territory: United States

Author's Country/Territory: Algeria

Manuscript submission date: 2025-02-02

Reviewer chosen by: Shang Wu

Reviewer accepted review: 2025-02-10 03:03

Reviewer performed review: 2025-02-10 06:30

Review time: 3 Hours

Content to be reviewed	Do authors' affiliations correspond to the content of the manuscript? Yes Is there any Key Word that is not included in the manuscript title? No Does the manuscript's content fall within the scope of the journal? Yes Does the Abstract contain the contents of each part of the manuscript (IMRaD)? Yes Are the Key Words complete? Yes Is the content of the Introduction adequate? Yes
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	<p>Is the content of the Materials and Methods complete? No</p> <p>Is the description of the experiments clear and complete? No</p> <p>Are the experimental data presented in the manuscript's biostatistics content reliable? No</p> <p>Are the quality and resolution of the images up to standard? No</p> <p>Are the experimental data of the Results true and reliable? No</p> <p>Do the selection and design of the figures and tables follow the principles of necessity and clarity? Yes</p> <p>Is the content of the Discussion reasonable? Yes</p> <p>Is the Conclusion reasonable? Yes</p> <p>Are all references necessary and reasonable? Yes</p> <p>Do authors omit important references? No</p> <p>Are all references related to the topic of the manuscript? Yes</p> <p>Do authors only cite their own earlier publications? No</p> <p>Is the manuscript's text correct, concise, and clear? Yes</p> <p>Will the manuscript's content be of interest to readers? Yes</p> <p>Are additional experiments needed for the study? No</p> <p>Does the research scope comply with ethics? Yes</p>
Scientific quality	Grade B (Very good)
Novelty of this manuscript	Grade B (Very Good)
Creativity or innovation of this manuscript	Grade B (Very Good)
Scientific significance of the conclusion in this manuscript	Grade B (Very Good)



Language quality	Grade C (Good)
Does this manuscript describe a study of the existing knowledge system?	Yes
Does this manuscript report a revolutionary innovation?	No
Does this manuscript report an unconventional innovation?	No
Conclusion	Minor revision
Re-review	Yes
Peer-reviewer statements	Peer-Review: Anonymous
	Conflicts-of-Interest: No

SPECIFIC COMMENTS TO AUTHORS

The manuscript presents an insightful and timely exploration of precision medicine’s role in transforming the diagnosis and management of celiac disease (CD). The authors do an excellent job of illustrating the integration of advanced technologies, particularly machine learning (ML) and electronic medical records (EMRs), to optimize patient outcomes. The structure is logical, with sections dedicated to background, technological innovations, challenges, and future directions, making it comprehensive and easy to follow. The introduction effectively establishes the prevalence, clinical variability, and diagnostic challenges associated with CD, providing a clear motivation for precision medicine applications. The detailed descriptions of precision medicine goals—risk prediction, outcome prediction, and personalized therapy—are well-articulated, offering readers a solid understanding of its clinical relevance. The emphasis on AI-driven approaches, such as ML models for genetic analysis, early diagnosis, subtype identification, and dietary management, is particularly commendable. The manuscript successfully highlights the diversity of ML applications, ranging from patient



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stratification to drug discovery, reflecting the breadth of innovation in CD management. Moreover, the inclusion of recent case studies, such as the Mayo Clinic's use of EMR algorithms, adds credibility and real-world relevance to the discussion. However, several areas could benefit from improvement: 1. Typos and grammar check: There are minor grammatical and typographical errors (e.g., "avenment" instead of "advent" and "Fianlly" instead of "Finally"). A careful proofreading is recommended to enhance readability. 2. Balanced discussion of limitations: The manuscript tends to focus on the benefits of AI and ML but does not provide a balanced view of potential drawbacks or risks, such as overreliance on AI-based predictions and limitations in underserved regions. 3. Graphical abstract: Adding figures that illustrate the concepts discussed (e.g., an overview of how ML and EMR integration works in precision medicine) would enhance engagement and understanding. A diagram showing CD diagnosis and monitoring workflows with AI involvement might provide visual clarity. Overall, this manuscript is a valuable contribution to the field, providing a thorough exploration of emerging technologies in precision medicine for CD.



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PEER-REVIEW REPORT

Name of journal: *Artificial Intelligence in Gastroenterology*

Manuscript NO: 105682

Title: Precision Medicine in Celiac Disease: a step ahead !

Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 08465764

Position: Peer Reviewer

Academic degree and professional title: Assistant Professor, Senior Researcher

Reviewer's Country/Territory: China

Author's Country/Territory: Algeria

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Reviewer chosen by: Shang Wu

Reviewer accepted review: 2025-02-12 12:04

Reviewer performed review: 2025-02-17 02:44

Review time: 4 Days and 14 Hours

Content to be reviewed	
Scientific quality	Grade C (Good)
Novelty of this manuscript	Grade C (Good)
Creativity or innovation of this manuscript	Grade C (Good)
Scientific significance of the conclusion in this manuscript	Grade C (Good)
Language quality	Grade C (Good)



Does this manuscript describe a study of the existing knowledge system?	Yes
Does this manuscript report a revolutionary innovation?	Yes
Does this manuscript report an unconventional innovation?	No
Conclusion	Major revision
Re-review	Yes
Peer-reviewer statements	Peer-Review: Anonymous
	Conflicts-of-Interest: No

SPECIFIC COMMENTS TO AUTHORS

This manuscript is generally well-organized, but it has several areas that need refinement to align with current research standards and to ensure clarity and consistency in the argument. Below are the detailed issues and improvements that should be addressed: 1. Introduction Section: Issue: The phrase "CD presents with diverse symptoms, including gastrointestinal issues like diarrhea and extraintestinal conditions such as anemia and osteoporosis" could be more specific. Improvement: It's important to mention that symptoms are not only diverse but also variable in severity. A more detailed mention of how these symptoms could overlap with other conditions would add depth. Issue: The mention of "advances in serology, histology, and genetic testing, such as HLA-DQ2/DQ8 analysis" is too general and lacks specificity in terms of advancements. Improvement: Provide more specific examples or recent advances in these areas to show how they have improved diagnosis accuracy in celiac disease (CD). 2. Precision Medicine in Celiac Disease Section: Issue: "Precision medicine is a real niche: it constitutes a cutting-edge approach of customizing healthcare by considering individual variability in genes, environment, and lifestyle." Improvement: This sentence is



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somewhat awkward and not entirely accurate. Precision medicine is not a "niche" but a broader paradigm in medicine. Consider revising it to, "Precision medicine is a comprehensive approach to customizing healthcare based on individual genetic, environmental, and lifestyle factors." Additionally, the spelling of "consitutes" should be corrected to "constitutes." Issue: The section should provide examples of the specific technologies or methods within precision medicine that are transforming the field. Improvement: Mention examples such as next-generation sequencing or advancements in AI and machine learning models being applied to the field. 3. AI and Machine Learning (ML) Section: Issue: "Tools like machine learning (ML) enhance early diagnosis, dietary management, and drug discovery, while electronic medical records (EMRs) support comprehensive patient profiling and disease monitoring, while." Improvement: The repetition of "while" at the end of the sentence is redundant. It can be removed, and the sentence can be restructured for clarity. Issue: The introduction of machine learning (ML) and artificial intelligence (AI) is broad, but the manuscript does not delve into specific types of ML algorithms that are currently most effective in celiac disease diagnosis or treatment. Improvement: Include references to specific ML techniques such as supervised learning, neural networks, or decision trees and how they apply specifically to celiac disease. 4. Electronic Medical Records (EMR) Section: Issue: The section on EMRs seems somewhat disconnected from the rest of the discussion on precision medicine and ML. While it is relevant, the transition between ideas could be smoother. Improvement: Consider explicitly connecting how EMR data can feed into AI-driven tools or ML models. For example, discuss how EMRs can be used to track patient progress, adjust therapies, and contribute to AI-based predictions. 5. Machine Learning (ML) and Precision Medicine in CD Section: Issue: The list of ML applications is helpful, but some points need further clarification or refinement: "Early Diagnosis and Risk Assessment": ML models predicting disease based on clinical and genetic data is



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stated, but more information on how accurate these models are compared to traditional methods would be useful. Improvement: Add concrete evidence or studies that demonstrate the effectiveness of ML models in early diagnosis compared to current diagnostic methods. Issue: "For CD patients, adhering to a gluten-free diet is critical, and ML-powered tools can easily identify hidden gluten in food products..." Improvement: This is a strong application of ML, but it lacks detail on the technical aspects of how ML would operate in this context. What tools or platforms have been developed, and what are the results or challenges in this area? 6. Data Quality and Ethical Considerations (Future Perspectives and Challenges): Issue: The ethical considerations are introduced briefly, but no discussion on how to handle data privacy in AI-driven healthcare tools is presented. Improvement: Expand on how AI systems in healthcare should comply with regulations like GDPR, HIPAA, and the ethical dilemmas around informed consent for using personal health data in machine learning models. 7. Grammar and Clarity Issues: "Fianlly" should be corrected to "Finally." The sentence, "The success of such ML models is contingent upon high-quality, representative datasets to mitigate biases and inaccuracies," is slightly convoluted. Improvement: Rephrase as: "The success of ML models depends on the availability of high-quality, diverse datasets that reduce biases and ensure accuracy." "Follow-up Monitoring: Tracking disease progression and response to therapy over time (gluten free diet, micro- and macro-nutrients assessment and/or supplementation), and guiding adjustment in management plans (19)." Improvement: The punctuation is awkward. It should be something like: "Follow-up Monitoring: Tracking disease progression and response to therapy over time (e.g., gluten-free diet, micro- and macro-nutrient assessments, and supplementation) and guiding adjustments in management plans (19)." 8. Conclusion Section: Issue: The conclusion is quite repetitive, especially the points about "AI-driven analytics" and "ML holds transformative potential." Improvement: Condense these ideas to avoid



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redundancy and make the conclusion more impactful. Focus on what the next steps in research should be and how future technologies will bridge existing gaps. Overall Recommendations: Clarity and Specificity: The manuscript should incorporate more specific examples, especially when discussing technological advancements in AI, ML, and precision medicine. For instance, mentioning real-world applications, case studies, or clinical trials can strengthen the arguments. Consistency: Make sure that the technical terms are consistently used throughout the manuscript, and avoid redundant phrasing or concepts. Flow: Improve the transitions between sections to create a more cohesive narrative. For instance, linking the role of EMRs and ML in precision medicine more directly to the clinical management of CD. Once these issues are addressed, the manuscript would be significantly strengthened and better aligned with current research trends in precision medicine and AI applications for celiac disease.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

Name of journal: *Artificial Intelligence in Gastroenterology*

Manuscript NO: 105682

Title: Precision Medicine in Celiac Disease: a step ahead !

Provenance and peer review: Invited Manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 08238819

Position: Peer Reviewer

Academic degree and professional title: PhD

Reviewer's Country/Territory: United States

Author's Country/Territory: Algeria

Manuscript submission date: 2025-02-02



Reviewer chosen by: Huo Liu

Reviewer accepted review: 2025-04-07 01:45

Reviewer performed review: 2025-04-09 16:57

Review time: 2 Days and 15 Hours

Content to be reviewed

Does the manuscript's content fall within the scope of the journal? **Yes**

Is there any Key Word that is not included in the manuscript title? **Yes**

Do authors' affiliations correspond to the content of the manuscript? **Yes**

Does the Abstract contain the contents of each part of the manuscript (IMRaD)? **Yes**

Are the Key Words complete? **Yes**

Is the content of the Introduction adequate? **Yes**

Is the content of the Materials and Methods complete? **Not Applicable**

Is the description of the experiments clear and complete? **Not Applicable**

Are the experimental data presented in the manuscript's biostatistics content reliable? **Not Applicable**

Are the experimental data of the Results true and reliable? **Not Applicable**

Are the quality and resolution of the images up to standard? **Yes**



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Do the selection and design of the figures and tables follow the principles of necessity and clarity? **Yes**

Is there any duplication between various parts of the manuscript and between the main text and the content presented in the figures and tables? **No**

Are the figures and tables numbered consecutively in the order in which they appear in the manuscript? **Yes**

Is the content of the Discussion reasonable? **Yes**

Is the Conclusion reasonable? **Yes**

Are all references necessary and reasonable? **Yes**

Do authors omit important references? **No**

Are all references related to the topic of the manuscript? **Yes**

Do authors only cite their own earlier publications? **No**

Is the manuscript's text correct, concise, and clear? **Yes**

Will the manuscript's content be of interest to readers? **Yes**

Does the research scope comply with ethics? **Yes**

Are additional experiments needed for the study? **No**



Scientific quality	Grade A (Excellent)
Novelty of this manuscript	Grade B (Very Good)
Creativity or innovation of this manuscript	Grade B (Very Good)
Scientific significance of the conclusion in this manuscript	Grade A (Excellent)
Language quality	Grade A (Excellent)
Does this manuscript describe a study of the existing knowledge system?	Yes
Does this manuscript report a revolutionary innovation?	No
Does this manuscript report an unconventional innovation?	No
Conclusion	Accept
Peer-reviewer statements	Peer-Review: Anonymous
	Conflicts-of-Interest: No

SPECIFIC COMMENTS TO AUTHORS

The revised manuscript entitled "Precision Medicine in Celiac Disease: A Step Ahead!", presents a timely and well-organized minireview highlighting the transformative potential of artificial intelligence and precision medicine in the diagnosis and management of celiac disease (CD). The authors successfully integrate current evidence on machine learning (ML) applications, electronic medical records (EMRs), and genomic



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technologies, offering a comprehensive perspective that is both clinically relevant and forward-looking. Key additions such as detailed algorithm performance metrics, enhanced descriptions of clinical applications, and visual aids (Figures 1 and 2) strengthen the manuscript.