

## REVIEWER'S REPORT

Manuscript No.: IJAR-53896

Date: 18/09/2025

**Title: Salivary Biomarkers in Prosthodontics: A Comprehensive Literature Review**

### Recommendation:

Accept as it is .....Yes.....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality	•			
Techn. Quality	•			
Clarity	•			
Significance	•			

Reviewer Name: Dr. Sireesha Kuruganti

Date: 18/09/2025

### Reviewer's Comment for Publication.

*(To be published with the manuscript in the journal)*

*The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.*

This manuscript provides a well-structured, in-depth review of salivary biomarkers in prosthodontics, thoroughly addressing the topic with current literature, clinical relevance, and future perspectives.

### Detailed Reviewer's Report

This manuscript provides a well-structured, in-depth review of salivary biomarkers in prosthodontics, thoroughly addressing the topic with current literature, clinical relevance, and future perspectives. Below is a detailed critical review with line-specific comments to help guide improvements and highlight strengths .

#### Abstract and Introduction

- Lines 3–18: The abstract is comprehensive, stating the importance of saliva as a diagnostic medium and its specific applications in prosthodontics. However, clarity would be improved by specifying key biomarker types upfront and highlighting the major gaps the paper addresses.

- Lines 20–61: The introduction effectively sets the context, emphasizing the transition from mechanical to biological focus in prosthodontics. Lines 37–45 introduce "salivaomics" as a novel umbrella concept but could benefit from clearer differentiation from standard salivary analysis .

#### Saliva Composition and Collection

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- Lines 64–127: This section details saliva's composition and robustly covers collection and standardization protocols. The inclusion of clinical relevance (lines 121–127) is a strength, directly linking methodology to patient outcomes. However, discussion on confounding variables (hydration status, medications) could be expanded for greater critical insight .

### Categories of Biomarkers

- Lines 128–154: The manuscript systematically categorizes biomarkers—proteomic, immunological, oxidative stress indicators, genomic, transcriptomic, metabolite, and microbiome signatures. This is a notable strength and provides a solid framework for readers. Adding more recent references for genomic and AI-driven biomarker discovery may enhance currency .

### Applications in Prosthodontics

- Lines 155–224: The section on applications is well-detailed and practical, covering:

- Edentulism and residual ridge resorption (lines 161–173)
- Implant health and peri-implant disease (lines 174–185)
- Xerostomia and prosthesis comfort (lines 186–196)
- Denture-related stomatitis (lines 197–205)
- Oral cancer and rehabilitation (lines 206–214)
- Digital prosthodontics (lines 215–224)

The discussion is authoritative and introduces the role of AI and digital workflows. However, the specificity of certain biomarker cutoff values and their inter-patient variability is underdeveloped and should be addressed for clinical applicability .

### Discussion

- Lines 225–281: The discussion synthesizes the clinical relevance, strengths of salivary diagnostics, and their integration into digital prosthodontics. The advantages (lines 248–255) are aptly enumerated but the limitations (lines 257–266) could benefit from more specific examples and a deeper statistical critique of cited studies. The mention of future AI-guided workflows (lines 267–277) is timely, though ethical and regulatory challenges are not mentioned .

### Conclusion

- Lines 287–311: The manuscript concludes with a succinct summary, emphasizing the shift toward precision and personalized prosthodontic care. However, the limitations noted earlier (lines 300–304) are not sufficiently linked to specific actionable solutions or ongoing trials .

### References

- Lines 314–347: The reference list is current up to 2025, covering core literature. In some cases, references to specific clinical trials or meta-analyses would improve scholarly rigor for recommendations made in the text .

## **REVIEWER'S REPORT**

### Strengths

- Comprehensive, clear organization with dedicated sections for methodology, applications, and future directions .
- Updated literature base (2015–2025), including digital and AI-assisted prosthodontics .
- Focus on clinical translation and patient-centered outcomes as a guiding theme .

### Weaknesses and Areas for Improvement

- Insufficient discussion of biomarker variability and cutoff selection for different clinical populations (lines 257–266) .
- Ethical issues in AI-assisted diagnostics and regulatory concerns are omitted when discussing future direction (lines 271–279) .
- Limited critique of individual study weaknesses or methodological variety in referenced research .
- More explicit actionable recommendations and pilot data for integrating biomarker testing into routine chairside care would strengthen the conclusion (lines 300–305) .

### Recommendations

- Expand on the statistical and methodological limitations of cited studies, especially regarding inter-patient variability and biomarker sensitivity/specificity, referencing key meta-analyses where possible .
- Address integration barriers (cost, regulatory, ethical considerations) for digital workflows and AI interpretation of biomarker data .
- Provide suggestions for multicentric trials or registries to validate the biomarker panels proposed, with example protocols where feasible .
- Consider including a flow diagram or block chart summarizing the clinical application process for salivary biomarkers in prosthodontics .

This review covers all major domains of the manuscript, marking specific line numbers for clarity and depth in feedback for revision or acceptance decisions