



Systematic Evaluation of Biomarkers in Saliva For Alzheimer's Disease

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Background

- Disease-modifying therapies for Alzheimer's Disease (AD) increase the need for scalable biomarkers.
- Plasma biomarkers have advanced considerably, prompting investigation of alternative biofluids.
- Saliva is a non-invasive, easily obtained body fluid.

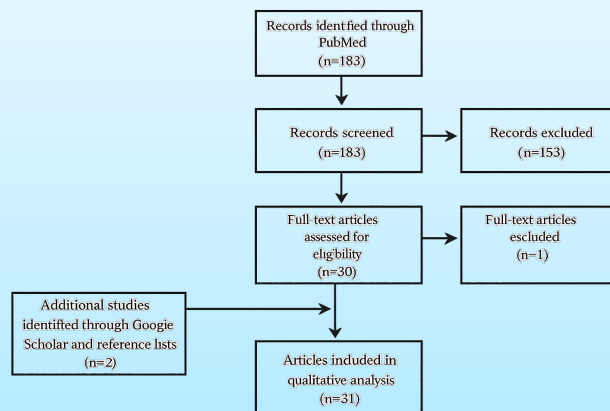
Methods

 Studies selected for review included original, full-text articles published in English, investigating biomarkers for AD in saliva. Studies must include saliva samples from AD patients and a control group.

 The original studies were identified through a literature search in PubMed and Google Scholar for all relevant articles up until April 1st, 2026.

 The filters "English" and "humans" were applied, and the following keywords were used for the search: (Saliva) AND diagnos* AND (Alzheimer OR AD) AND (biomarker).

Study selection



Results



Literature search

- The initial literature search in PubMed identified 183 studies.
- The titles and abstracts were screened and 153 studies were excluded.
- A total of 31 studies were included.



Tau

- Elevated p-tau and altered p-tau/t-tau ratios have been reported, but there is mixed evidence across studies.



Ab42

- Several studies report elevated levels in AD, but findings remain inconsistent.



Lactoferrin

- High diagnostic performance for AD in some studies, while other studies find no significant differences.



Other biomarkers

- NfL, GFAP, steroid hormones, AchE activity, salivary miRNA show mixed results.



Methodological challenges

- Large variation in collection, storage conditions, and analytical procedures.
- Lack of standardization limits reproducibility and comparability across studies.

Conclusions



Most biomarkers can be detected in saliva.



Aβ42 and tau species remain the most promising candidates.



Current evidence is limited by methodological heterogeneity and insufficient validation.



Future priorities: Large-scale studies, standardized saliva collection protocols, validation of biomarker panels.



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