



# Racial Differences in Salivary Alzheimer's Disease Biomarkers and Cognitive Performance in Older Adults

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Saliva offers a non-invasive, accessible window into Alzheimer's disease (AD) biomarkers, but racial differences in those biomarkers demand race-conscious interpretation

## Introduction

- AD affects 7M+ Americans; early detection is critical, but current tools (CSF, PET, blood draw) are invasive, costly, and inaccessible
- Black adults are nearly 2x more likely to develop AD yet are underrepresented in biomarker research
- Saliva is emerging as a non-invasive, low-cost alternative that could improve equity in AD screening
- Key salivary biomarkers (p-tau181, t-tau, lactoferrin, alpha-synuclein, amyloid- $\beta$  42) have been detected in saliva with promising links to CSF and plasma levels
- Little is known about how these biomarkers vary by race or relate to cognition in diverse samples

## Purpose

- Examine racial differences in salivary AD biomarkers in a diverse, community-based midlife/older adult sample
- Assess associations between salivary biomarkers and cognitive performance across multiple domains

## Methods

- Participants recruited from three Emory studies (E2, MVP, CARDI); see Table 1 for characteristics
- Salivary biomarkers via ELISA
- Cognitive battery: global cognition, executive function, memory, processing speed, language, visuospatial reasoning
- Statistics: independent samples t-tests for group differences; Pearson correlations for biomarker-cognition associations

## Results

Table 1. Participant Characteristics

| Variable                             | Mean $\pm$ SD / N (%) |
|--------------------------------------|-----------------------|
| Age (years)                          | 66.5 $\pm$ 9.7        |
| Female                               | 49 (67%)              |
| Black and African American           | 43 (62%)              |
| Education (years)                    | 16.22 $\pm$ 2.61      |
| Montreal Cognitive Assessment (MoCA) | 25.82 $\pm$ 3.13      |

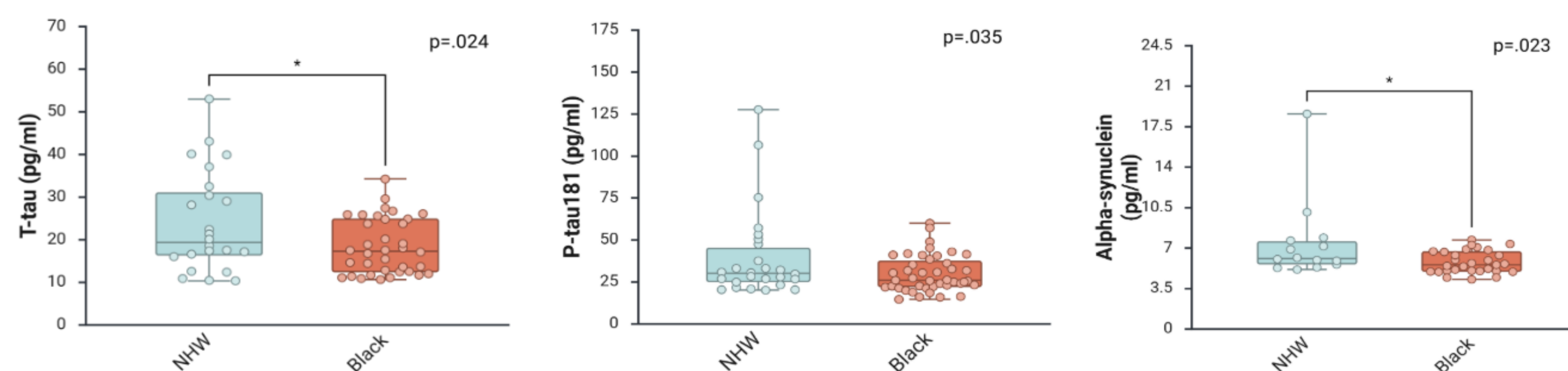


Figure 1. Black participants had significantly lower t-tau, p-tau181, and alpha-synuclein than NHW participants; no differences in lactoferrin or amyloid- $\beta$  42

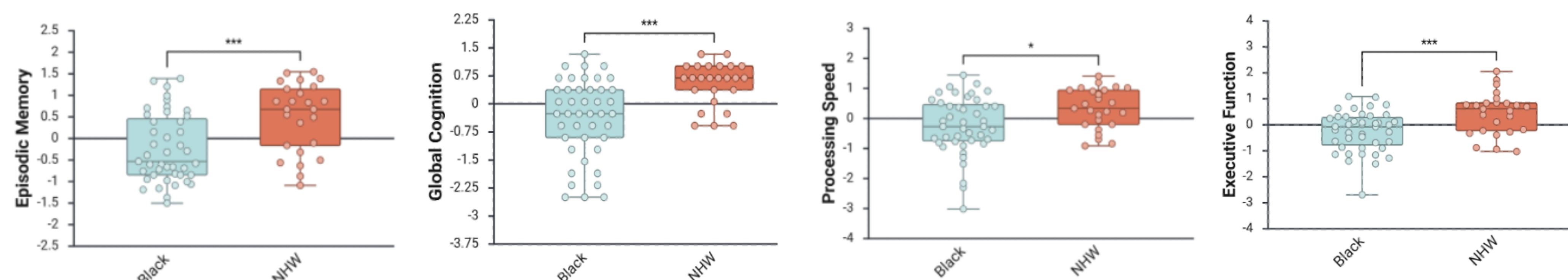


Figure 2. Black participants showed lower performance across all major cognitive domains

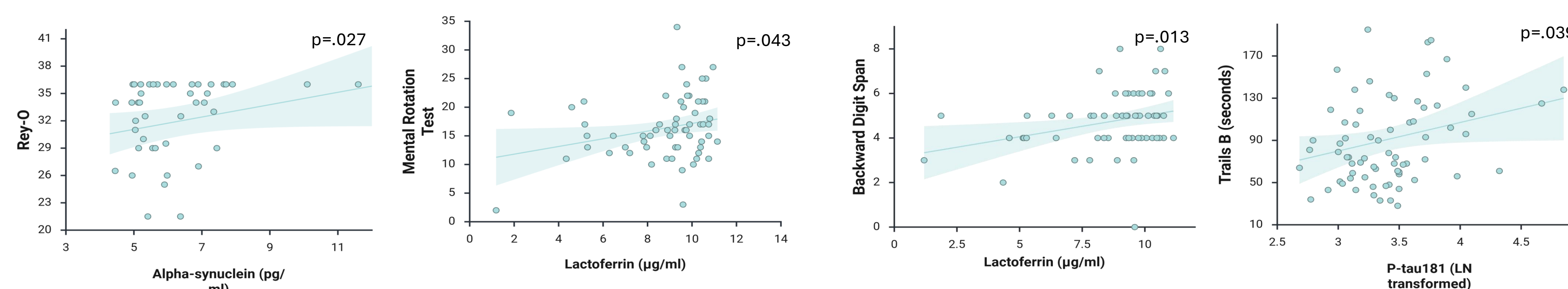


Figure 3. Across the full sample, three biomarkers showed significant domain-specific associations with cognition

## Conclusion

- Black adults had lower salivary p-tau181, t-tau, and alpha-synuclein than NHW adult despite lower cognitive performance across domains
- Lower biomarker levels  $\neq$  lower AD risk  $\rightarrow$  race-specific reference ranges are needed
- Several salivary biomarkers showed meaningful associations with domain-specific cognition
- Saliva may reduce participation barriers for underrepresented groups in AD research
- Biomarker thresholds from predominantly white cohorts should not be applied universally

## Limitations

- Cross-sectional design; no CSF or plasma comparison
- Variable sample sizes across biomarker assays
- Pre-analytical variability inherent to saliva collection

## References

Contact information, abstract, and references can be found here:



## Acknowledgements

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