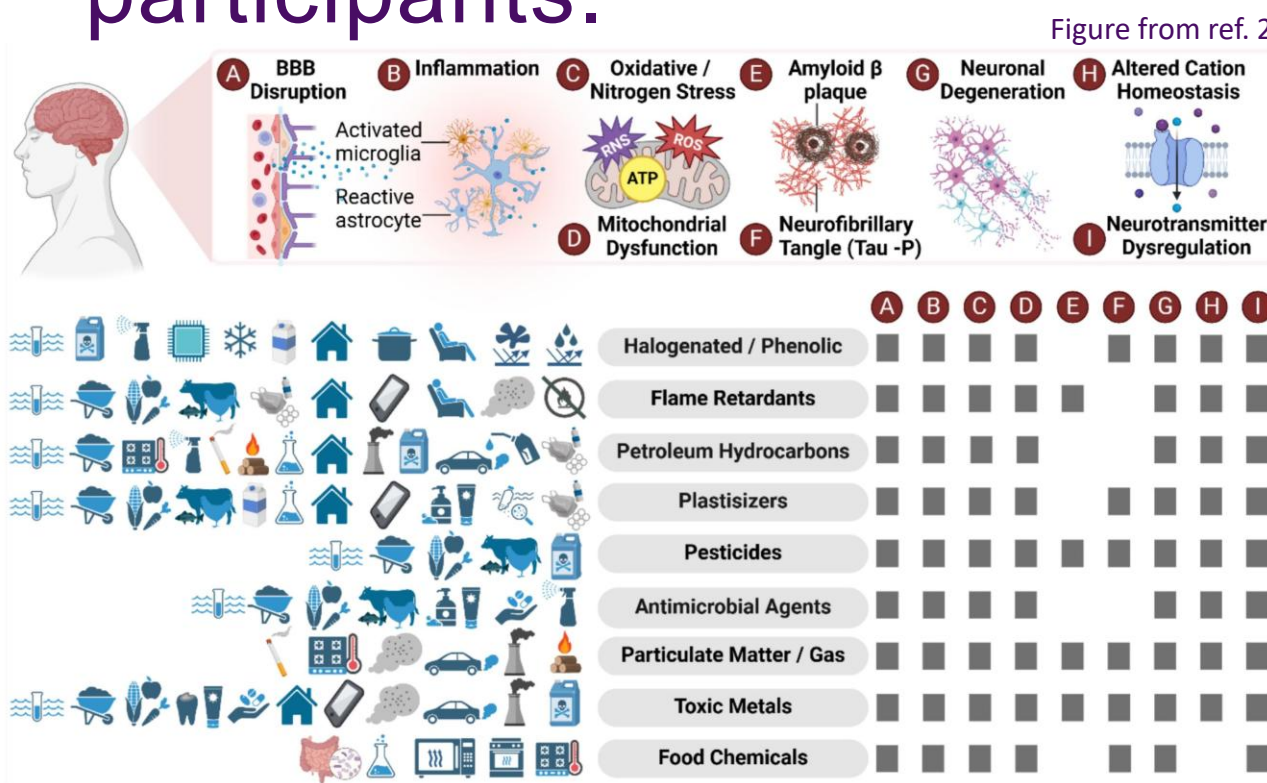


Metabolic Signatures for Alzheimer’s Disease and Blood Biomarkers Reveal an Important Role for the Chemical Exposome: ADRC cohort

Christopher R. Brydges, Naama Karu, Kamil Borkowski, Siamak MahmoudianDehkordi, Nuanyi Liang, Colette Blach, Kevin Huynh, Peter Meikle, Leyla Schemmel, Oliver Fiehn, Pieter Dorrenstein, David Wishart, Tuulia Hyötyläinen, Matej Orešič, Thomas Hankemeier, Susan Sumner, Jared Brosch, Rima Kaddurah-Daouk, Alzheimer's Gut Microbiome Project

INTRODUCTION

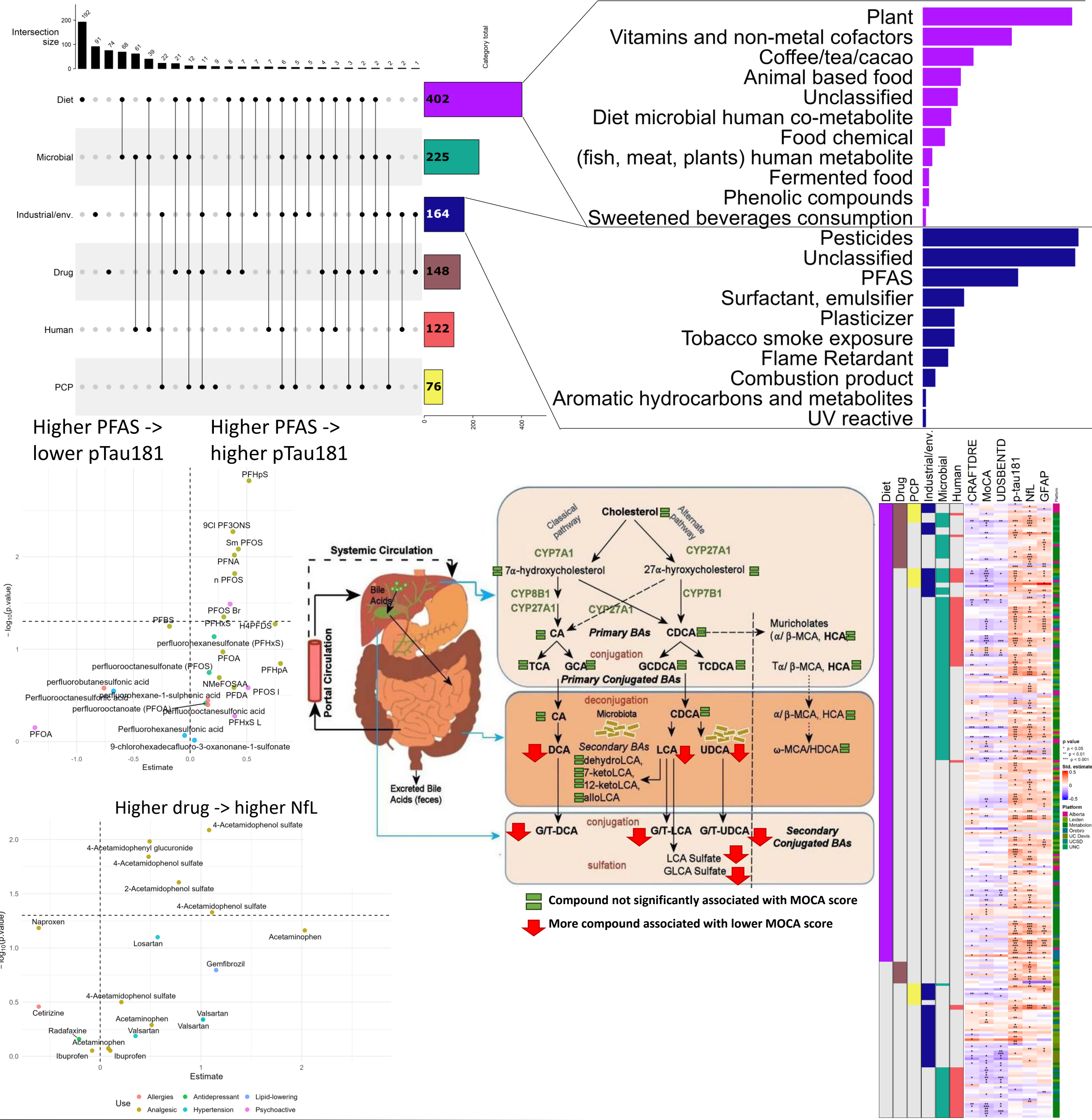
- The exposome may shape Alzheimer’s disease (AD) risk through environmental exposures, medications, diet, and gut-derived metabolism.^{1,2}
- Blood metabolomics provides a way to measure these exposures and their links to cognition and AD biomarkers.^{3,4}
- This study examined exposome-related metabolites associated with cognition and plasma biomarkers in ADRC participants.



METHODS

- Blood samples from 519 older adults were profiled across seven metabolomics, lipidomics, foodomics, and exposomics platforms.
- Linear models tested associations between measured chemicals, cognition, and plasma pTau181, NfL, and GFAP.
- Exposome-related metabolites were associated with cognition and AD-related plasma biomarkers.
- Signals included PFAS, personal care product surfactants, drugs, coffee metabolites, and microbial products such as indoxyls, p-cresols, hippurate, and secondary bile acids.

RESULTS



CONCLUSIONS

- Chemical exposome may contribute to metabolic signatures linked with cognition and AD biomarkers.
- Environmental and dietary exposure markers may represent modifiable factors for future AD risk research.

REFERENCES

- Karu et al. (2026). doi:10.64898/2026.05.05.26352469
- Orešič et al. (2025). doi:10.1016/j.envint.2025.109741
- Arnold et al. (2025). doi:10.1038/s41467-025-57032-0
- Kuilman et al. (2026). doi:10.1186/s13195-026-02108-2