

The impact of the menstrual cycle on skin volatile profiles



MDC Workshop

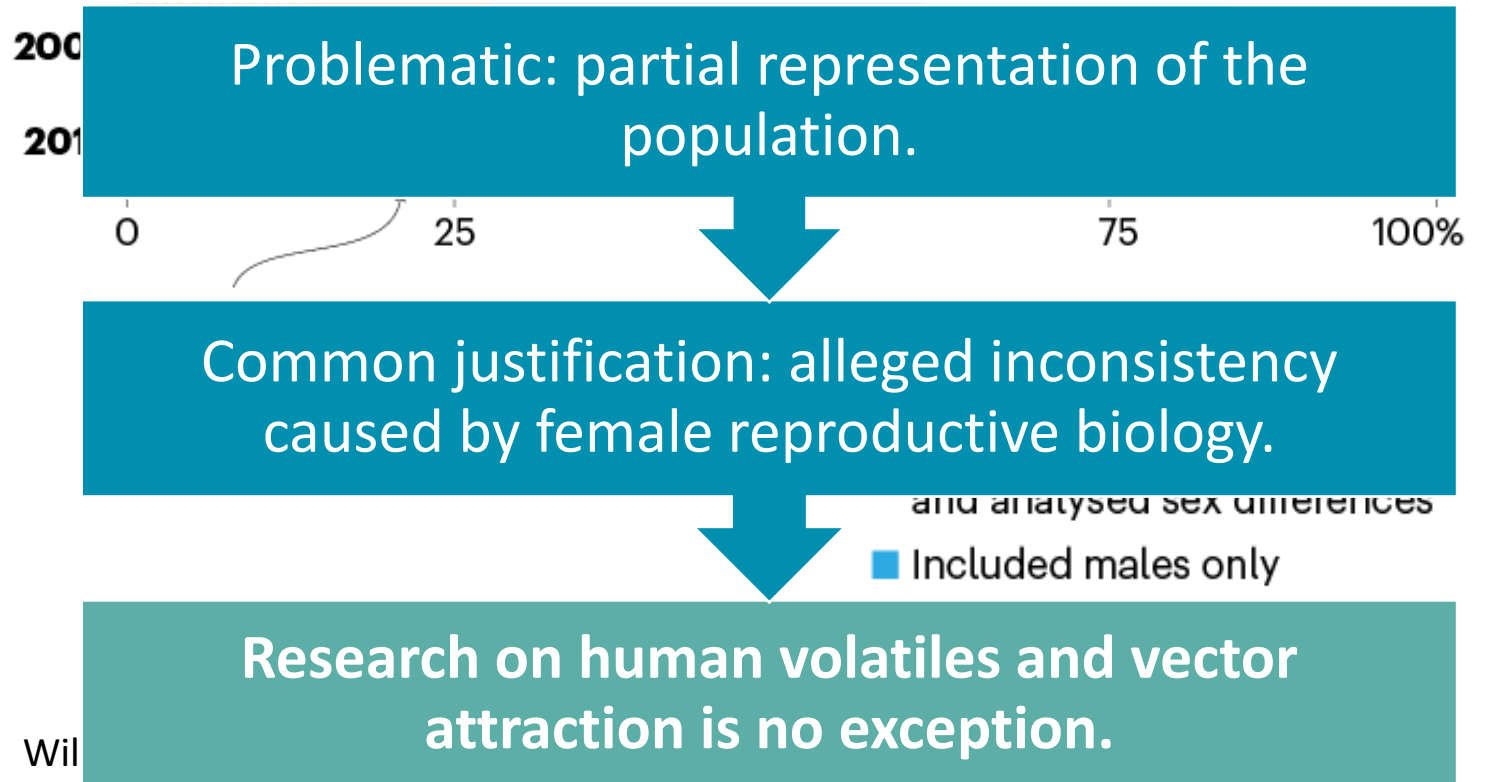
February 3rd, 2025

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ETH Zurich – Biocommunication Group



Poor levels of inclusion of females in biological research



Wil

With data from *Woitowich et al. (2020). eLife*

Introduction

Research questions



Does the body odour vary consistently throughout the menstrual cycle?



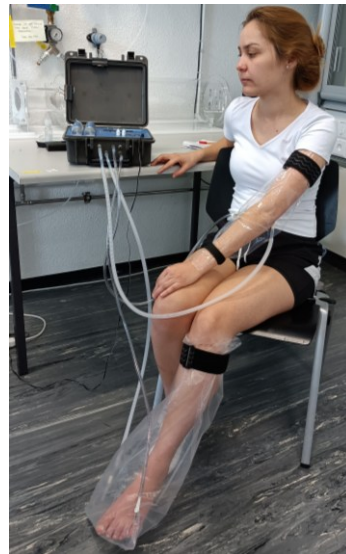
Is there a sex signature in skin volatiles?

Methods

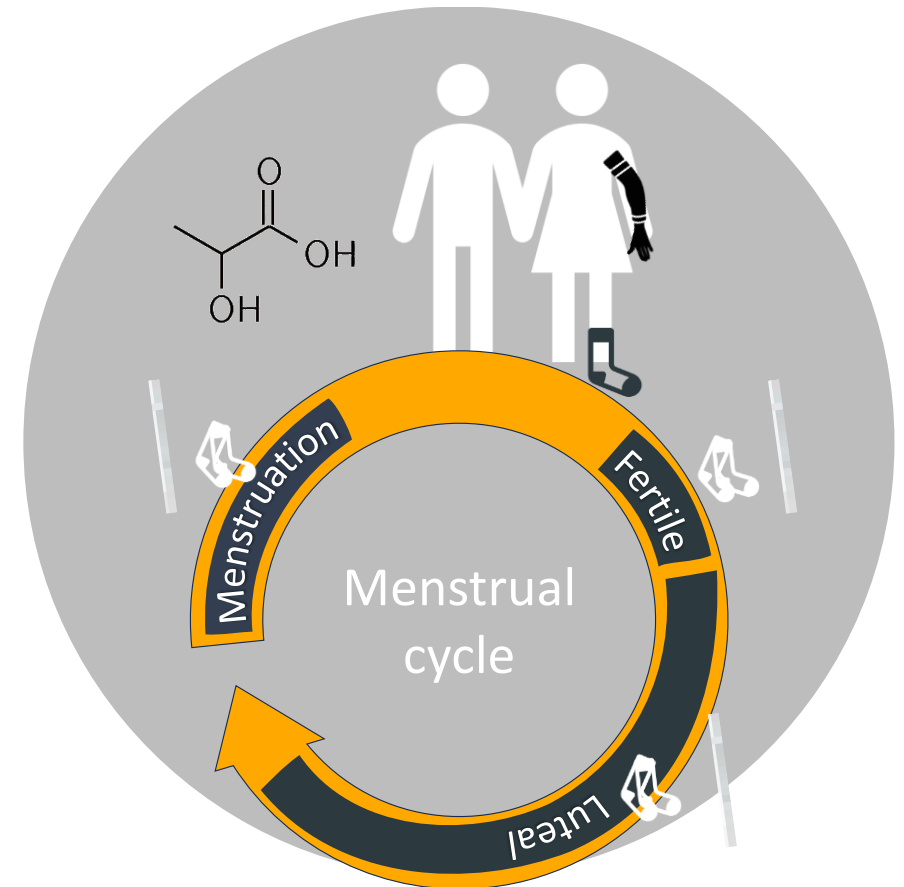
Skin volatile collections

Repeated collections and analyses of skin odour profiles from female subjects (and male controls) at 3 timepoints.

Push-pull pump system



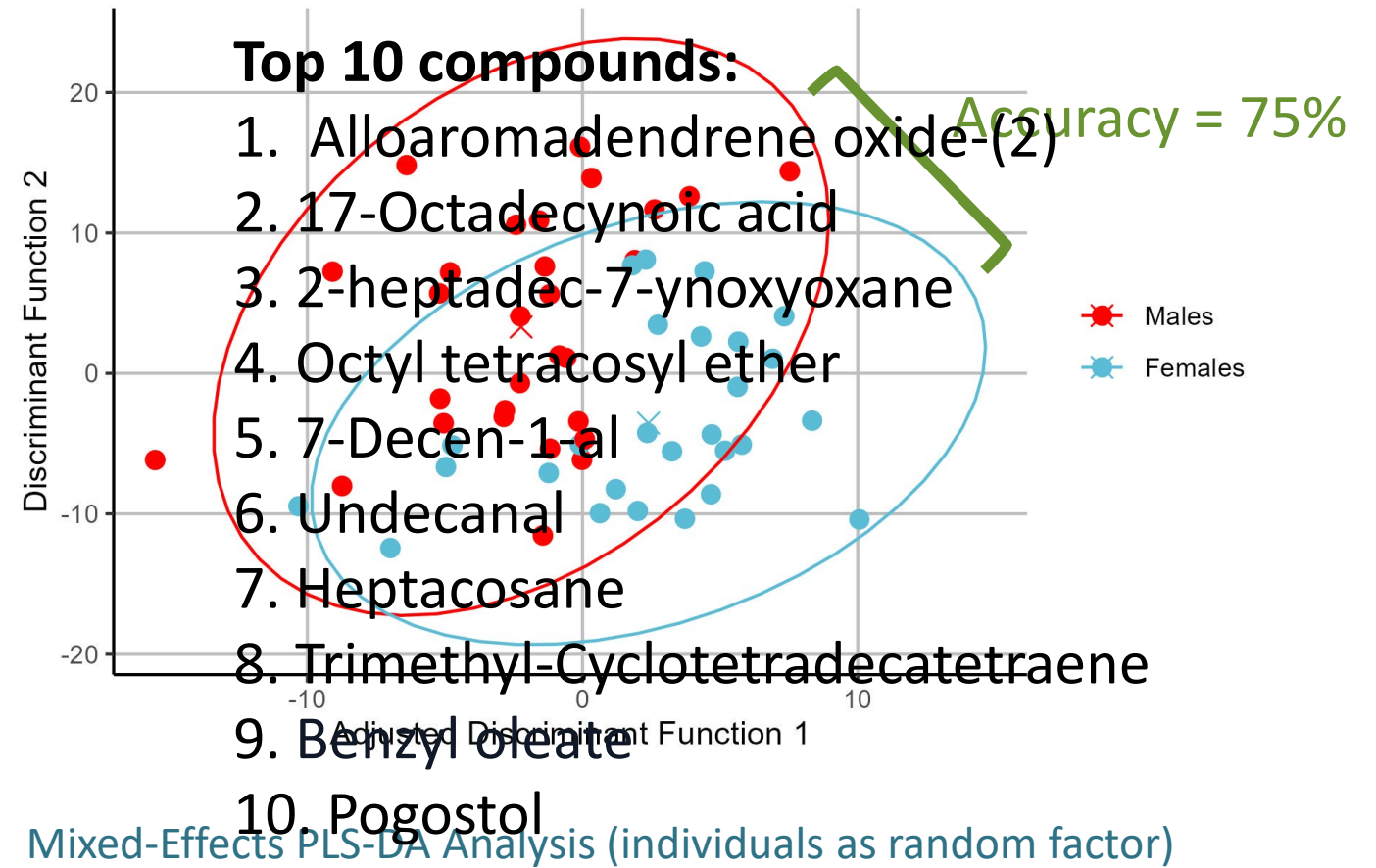
Tenax GR-Carboxen TD liner



Results

Sex differences

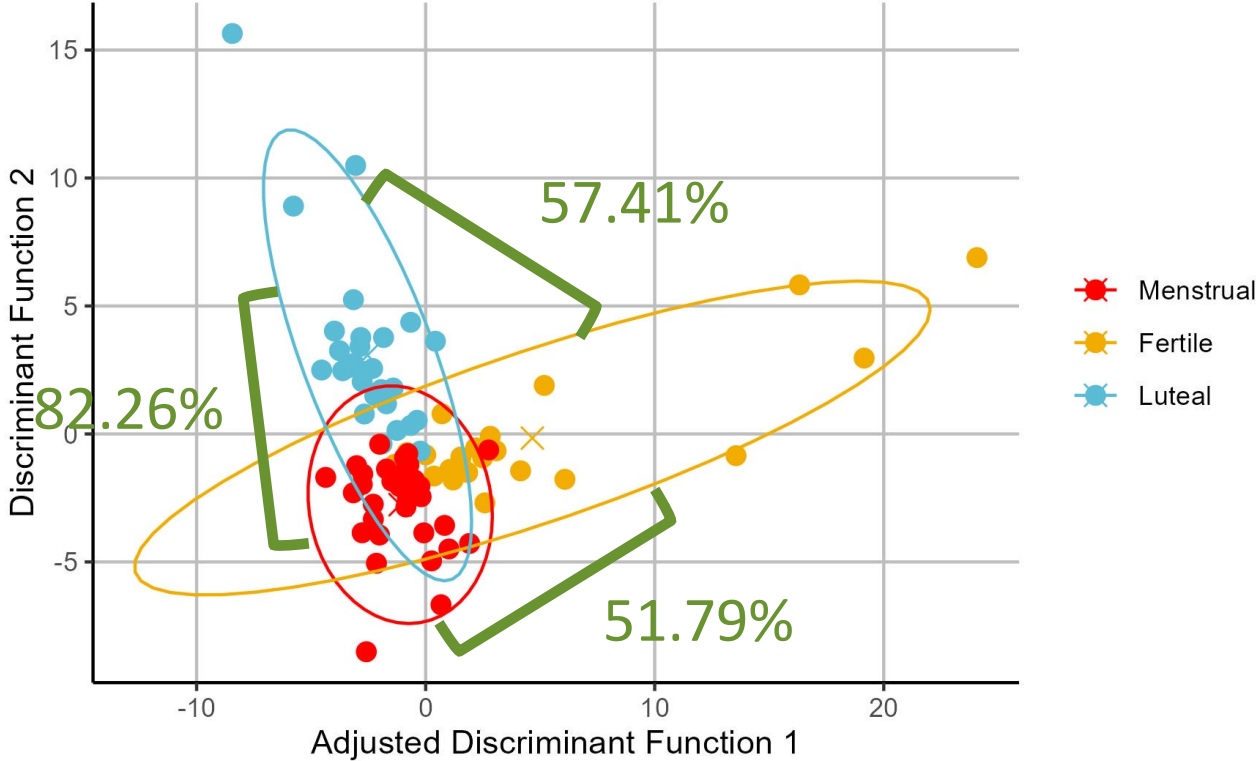
Random Forest analysis



Results

Menstrual cycle differences

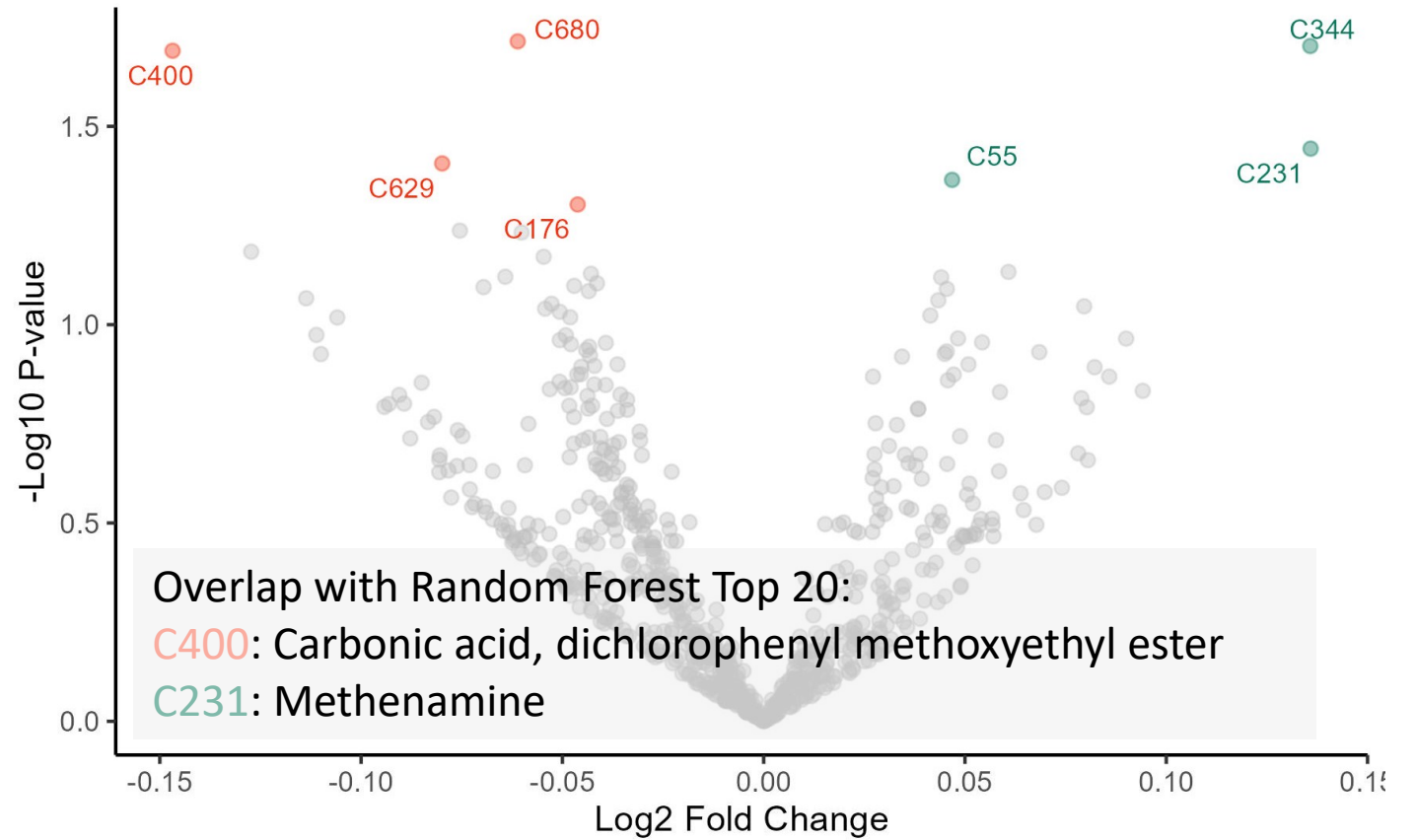
Random Forest analysis accuracies



Mixed-Effects PLS-DA Analysis (individuals as random factor)



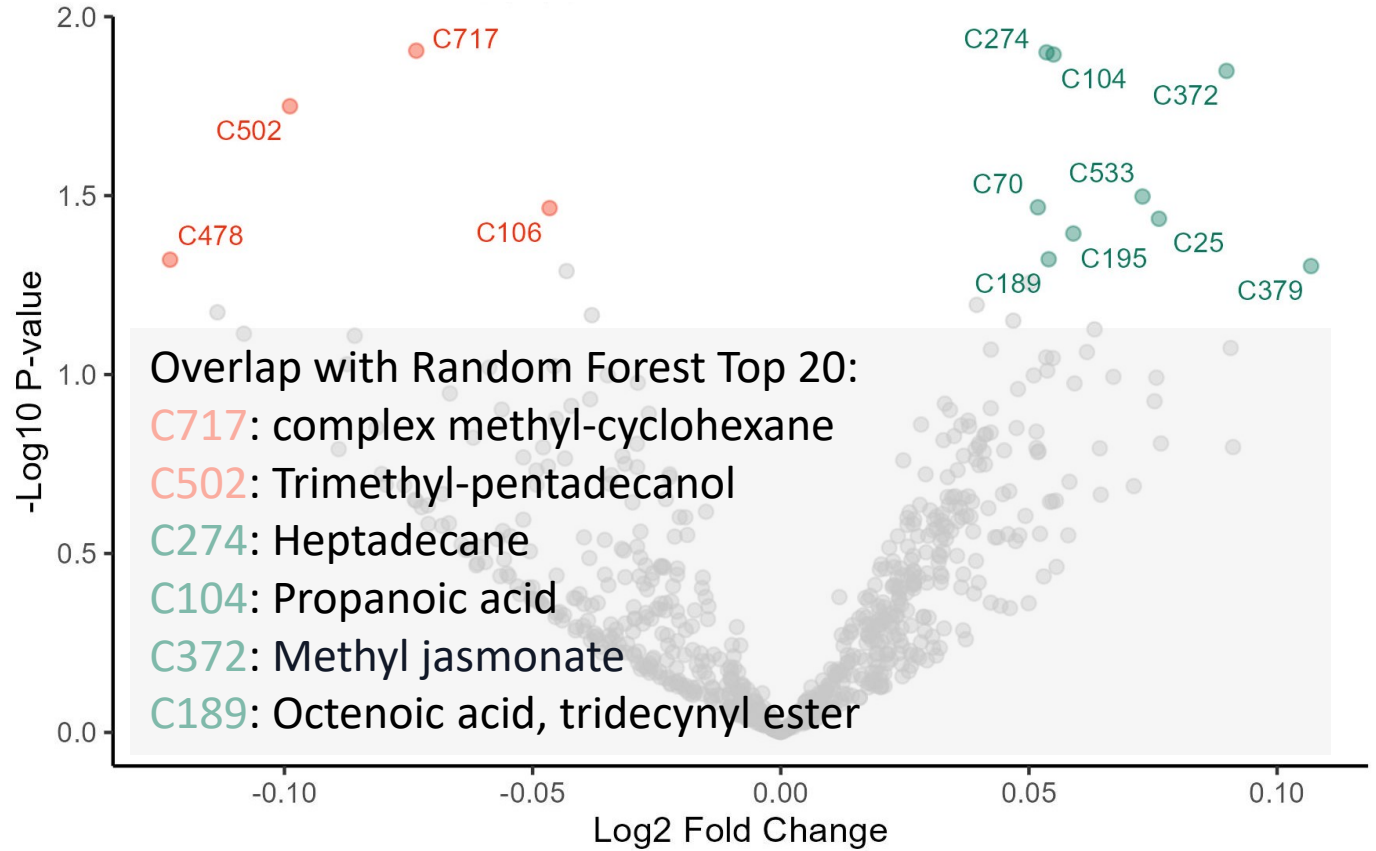
Limma analysis: Fertile vs. Menstrual



Results

Menstrual cycle differences

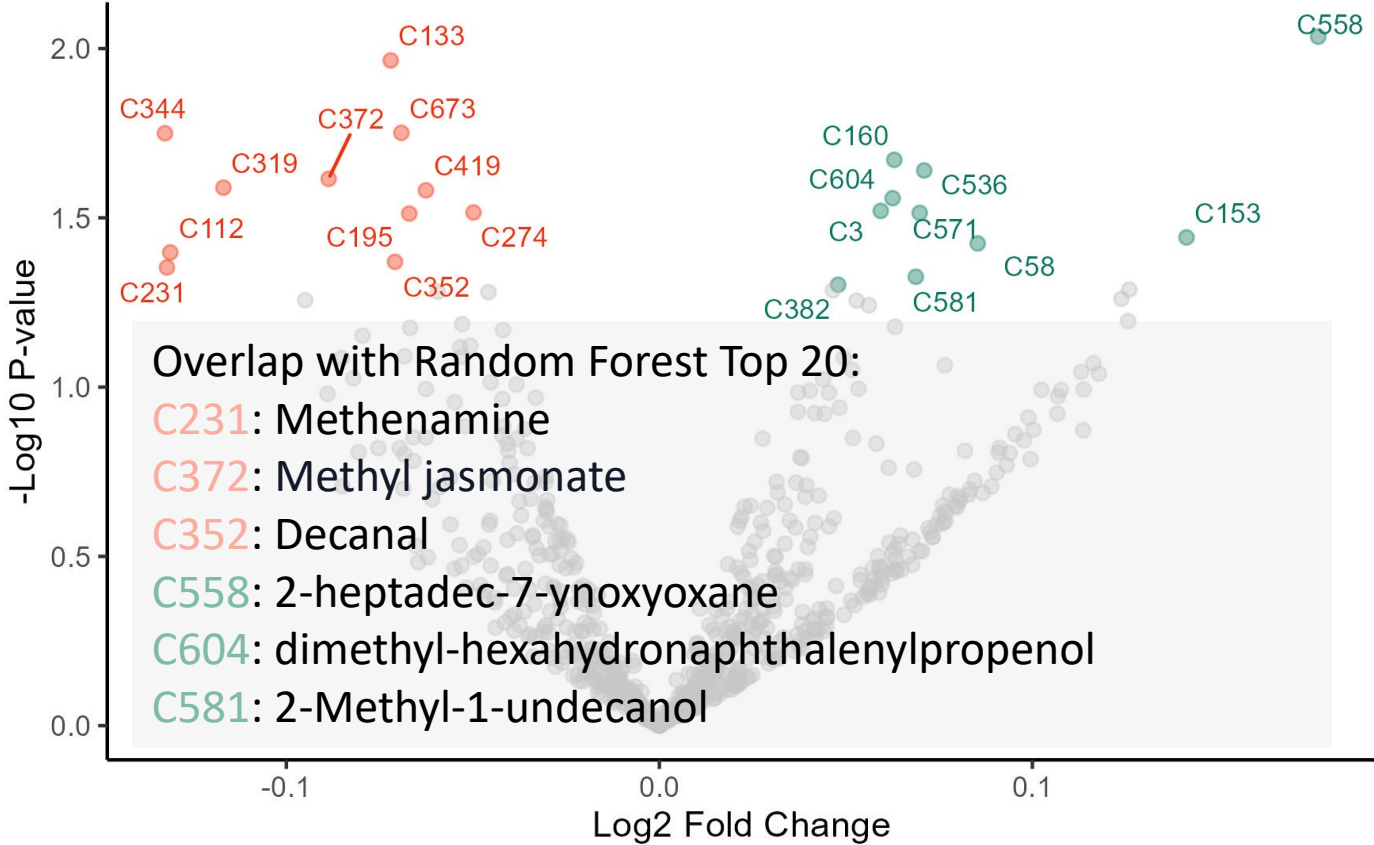
Limma analysis: Menstrual vs. Luteal



Results

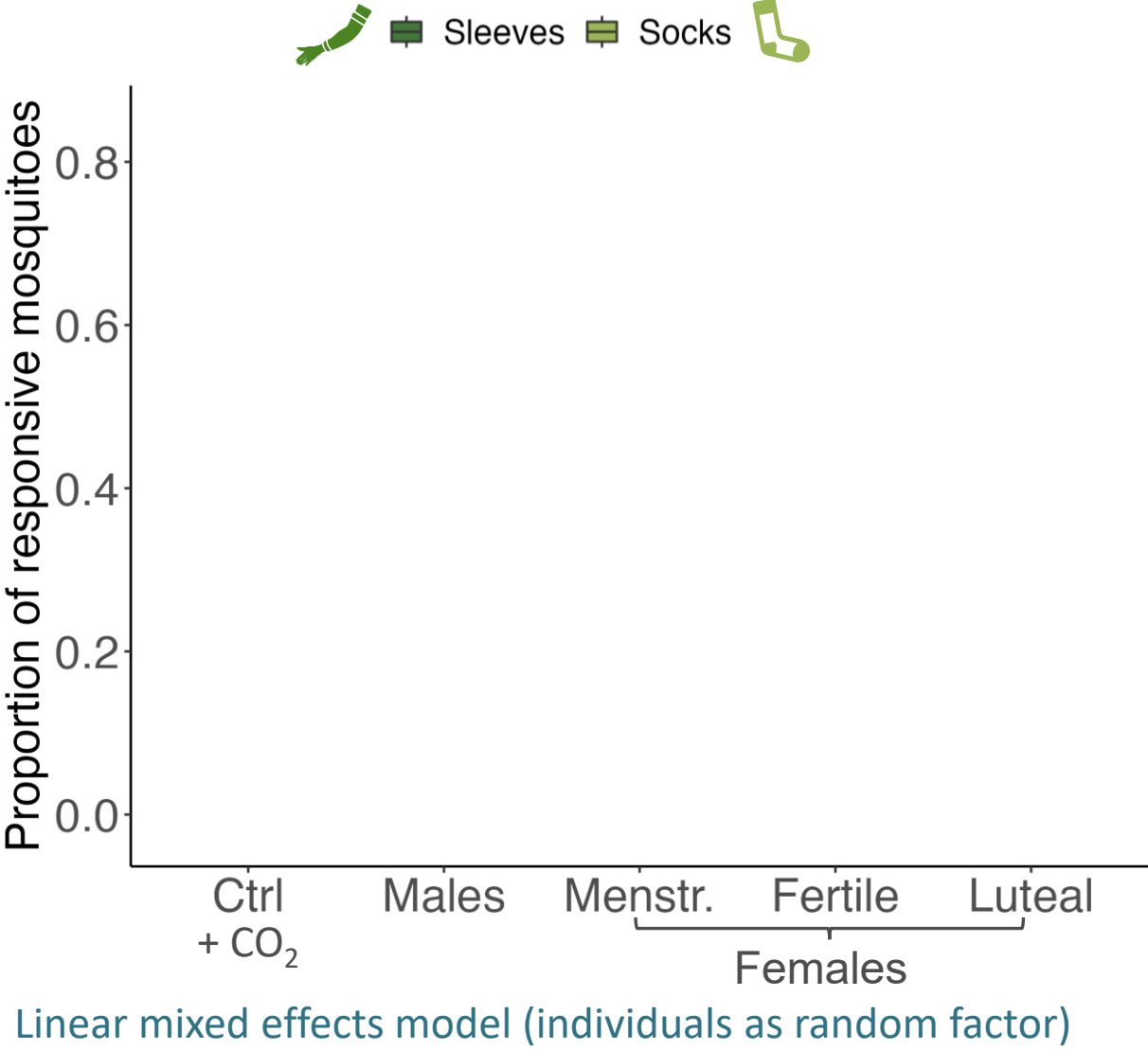
Menstrual cycle differences

Limma analysis: Luteal vs. Fertile



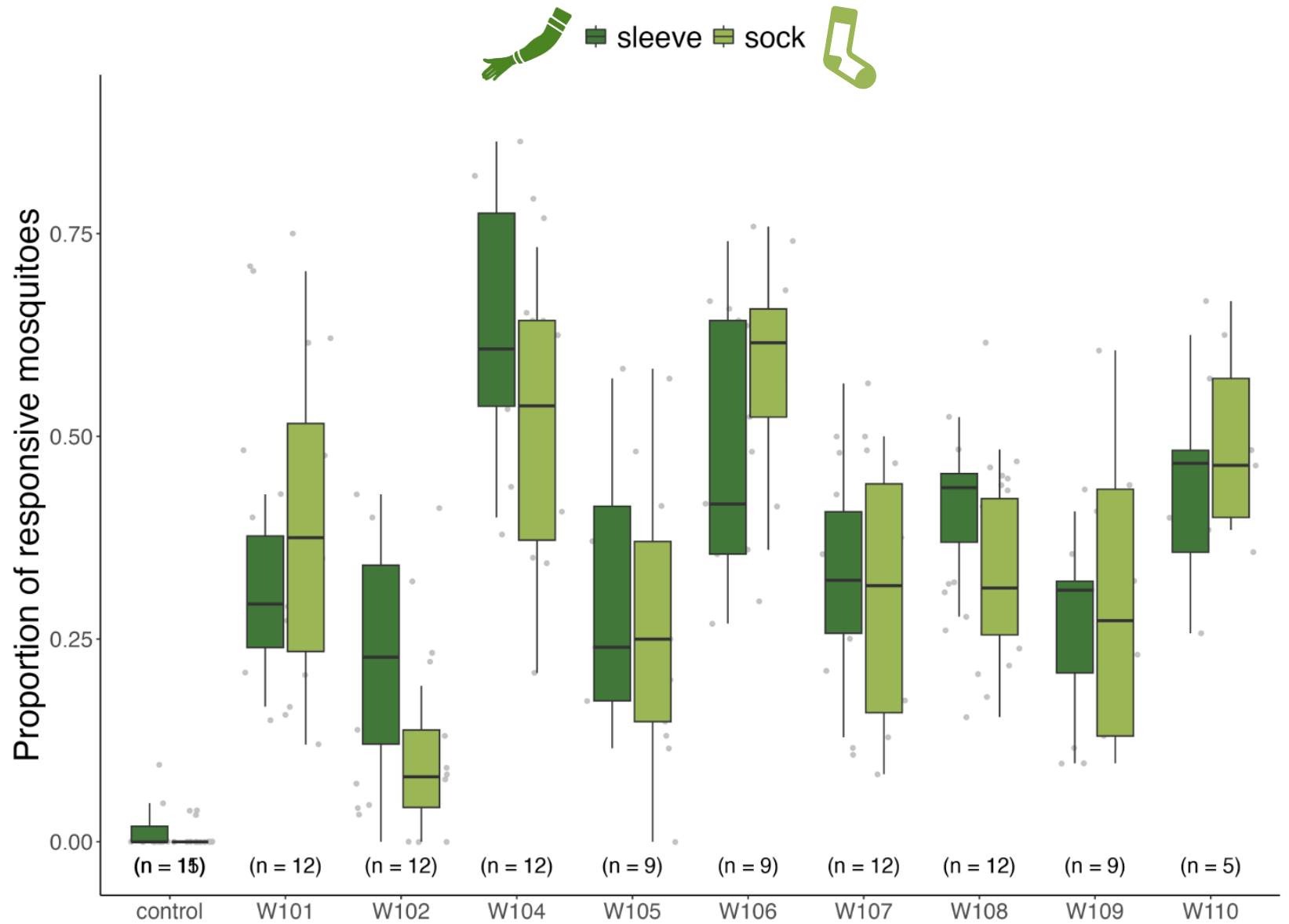
Results

Mosquito behaviour



Results

Mosquito behaviour



Linear mixed effects model

Take-home message

GCxGC-MS analysis



Sex differences



Menstrual cycle differences

Mosquito assay



No sex preferences



No preferences for any menstrual cycle phases



Stable attraction for participants

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