P2-038

ORAL MICROBIOME AND CORTISOL IN A COMMUNITY SAMPLE OF YOUTH

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Introduction

- Early stress is associated with adverse health risks[1,2]
- Microbiome dysregulation is a potential mechanism for these health risks, with much of the evidence coming from studies of the gut microbiome[3]
- However, the oral microbiome is also an important contributor to systemic health[4]
- Cortisol may induce a pathogenic shift in the oral microbiome[5]

Aims

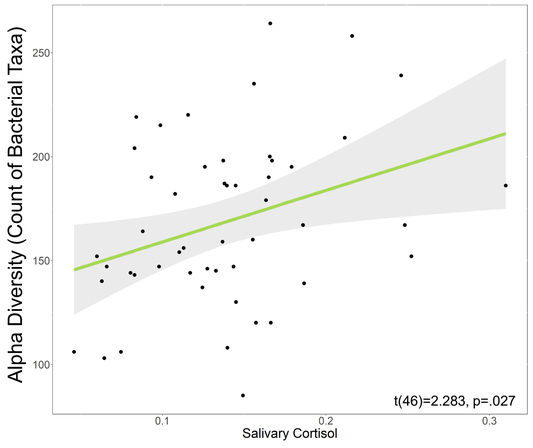
- Examine associations between oral microbiome characteristics and sex, age, and salivary cortisol

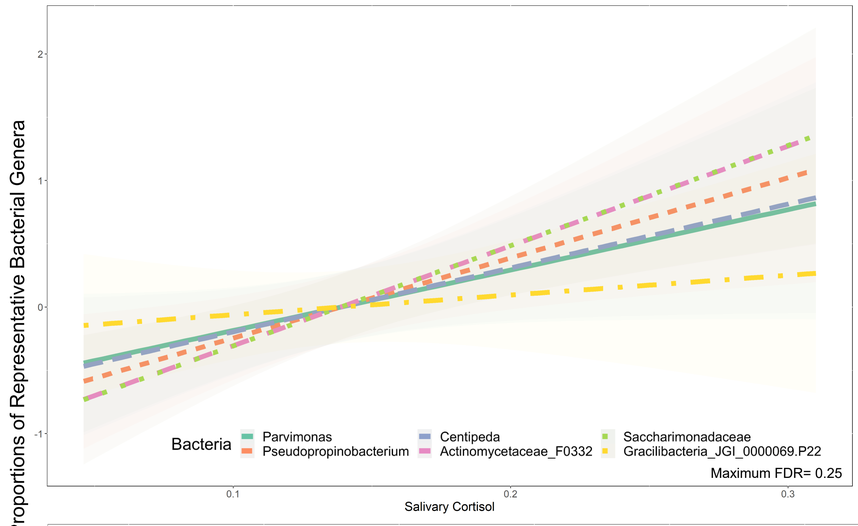
Methods

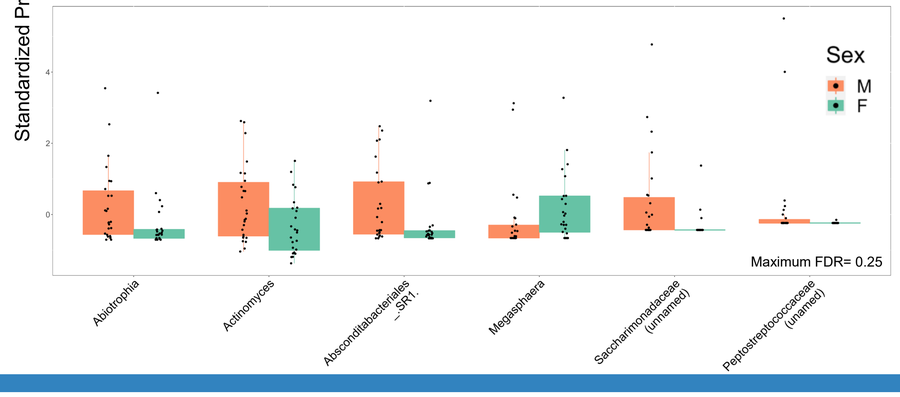
- Community sample (N=50)
- Ages 6-17 (mean: 10.84)
- Salivary cortisol averaged over 1-4 (mean: 3.43) visits
- Oral microbiome sequenced using 16S from saliva collected at 1 visit
- Alpha diversity & preprocessing in Qiime2
- Bacterial abundance predicted from age, sex, and cortisol using OLS with transformation and multiple comparison correction (MaAsLin2)[6]

Salivary cortisol is positively associated with characteristics of the oral microbiome, some of which may indicate increased health risk.

Results







Conclusion

- Salivary cortisol is associated with differences in both bacterial abundance and alpha diversity that are potentially pathogenic in the oral microbiome
- Oral microbiome composition differs by sex
- The pathogenic potential of these characteristics is hypothesized, but not yet well-characterized
- Prospective work should examine mechanisms, including:
  - Oral hygiene habits
  - Inflammation
  - Access to dental care

References

1. Miller et al., 2015
2. Doom et al., 2017
3. Vogel et al., 2020
4. Hajishengallis, 2014
5. Simpson et al, 2020
6. Mallick et al., 2021