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Exploring role of the skin microbiome and host genetics in human attractiveness to mosquitoes.

Abstract:

Background: Some people produce specific body odours that make them more attractive than others to mosquitoes, and consequently are at higher risk of contracting vector-borne diseases.

Results:

Here, we examined how skin microbiome composition of women differs in relation to level of attractiveness to *Anopheles coluzzii* mosquitoes, to identify volatiles in body odour and metabolic pathways associated with individuals that tend to be poorly-attractive to mosquitoes. We found differences in skin microbiome composition between the poorly- and highly-attractive groups, particularly eight Amplicon Sequence Variants (ASVs) belonging to the Proteobacteria, Actinobacteria and Firmicutes phyla. Propanoic pathways are enriched in the poorly-attractive participants compared to those found to be highly-attractive. We found attractiveness to mosquitoes and some genera of bacteria to be heritable that suggests a genetic component to mosquito attractiveness.

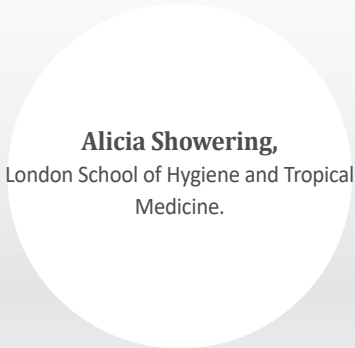
Conclusions:

Our findings suggest that variation in attractiveness of people to mosquitoes is related to the composition of the skin microbiota, knowledge that could improve odour-baited traps or other next generation vector control tools.

BIOGRAPHY:

Alicia is a final year PhD student at the London School of Hygiene and Tropical Medicine working on a multi-disciplinary project exploring the role of the skin microbiome in human attractiveness to mosquitoes. Alicia has used 16S sequencing, metabolomics and behavioural studies to investigate the skin microbiome and body odour profile of two cohorts of twins, in the UK and Gambia. Alicia is interested in opportunities to apply her expertise to develop innovative technologies to improve health in the future.

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