

## P31 & FP – The involvement of microbiome in hair disorders: the example of *Alopecia areata*

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**Background:** Some authors reported evidence on the link between the gut microbiome and *Alopecia areata* (AA) [1,2] but poor information are currently available as regards microbial communities on the scalp [3,4]. Since its unique features scalp is expected to harbor a specific microbiome, which is expected to play a peculiar role in scalp conditions related to hair growth [5].

**Objective:** Investigate if in AA subjects there is an imbalance of bacterial communities of the scalp and if this disequilibrium extends till subepidermal compartments of the scalp.

**Methodology:** Bacterial communities in healthy and AA subjects, were investigated by mean of RT qPCR and 16S sequencing. Samples of superficial epidermis have been collected by mean of swab procedure. 4mm punch have also been collected from the scalp in order to investigate the distribution of bacterial communities in the subepidermal compartment of the scalp.

**Results:** The analysis of bacterial distribution at the genus level highlighted an increase of *Propionibacterium* in AA subjects alongside a general decrease of *Staphylococcus*. Analysis of log Relative abundance of main bacterial species inhabiting the scalp showed a significant increase of *Propionibacterium acnes* in AA subjects compared to control ones. AA is also associated with a significant decrease of *Staphylococcus epidermidis* relative abundance while no significant changes were found for *Staphylococcus aureus*. Therefore data from sequencing profiling of the bacterial population strongly support a different microbial composition of different area surrounding hair follicle from the epidermis to hypodermis, highlighting differences between normal and AA affected scalp.

**Conclusions / Implications for practice:** Our results showed the presence of a microbial shift on the scalp of patients suffering from AA and gives the basis for a larger and more complete study of microbial communities involvement in hair disorders.

### References

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