[P199] STAPHYLOCOCCUS EPIDERMIDIS HEAVILY RELIES ON ITS IRON ACQUISITION SYSTEMS TO FORM BIOFILMS

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Staphylococcus epidermidis has long been recognized as a major nosocomial pathogen. Biofilm is its main pathogenic feature, yet there is plenty to uncover about this process. We recently found that biofilm formation in this species is largely dependent on iron availability. However, and unlike many other bacterial species, its iron acquisition systems remain unknown to date due to the lack of proper mutant strains. Therefore, it was our aim to uncover *S. epidermidis* iron acquisition systems and to understand how they modulate biofilm formation.

To address this question, putative iron-uptake related genes (*SERP1775-77*, *SERP1778-81*, *SERP0306*, *SERP0400-3*) were deleted in the strong biofilm-producing *S. epidermidis* 1457. Intracellular iron concentration for each strain was determined and biofilm formation was tested using an iron-replete (Tryptic Soy Broth, TSB) and an iron-deficient medium (Chemically Defined Medium without iron, CDM-Fe^{-}). Deletion of those genes resulted in decreased intracellular iron contents, as well as had an impact on biofilm formation. Moreover, all mutant strains but 1457Δ*0400-3* exhibited reduced biofilm formation after growth in CDM-Fe^{-}, which was reversed by supplementation of CDM-Fe^{-} with 10 µM $FeCl_3$.

This is the first study on *S. epidermidis* to provide an experimental association between different genetic loci and iron-acquisition processes. Independent components of the iron acquisition machinery have a differential impact on biofilm formation, and ongoing work will elucidate mechanisms related to the observed phenotypic differences. Moreover, the lack of certain iron-acquisition systems seems to be detrimental for biofilm formation, which turns iron uptake into an interesting target for biofilm control.