

P2290 *Cutibacterium acnes* isolates recovered from skin and soft tissue infections and from medical device infections are strong biofilm producers compared to isolates recovered from healthy skin

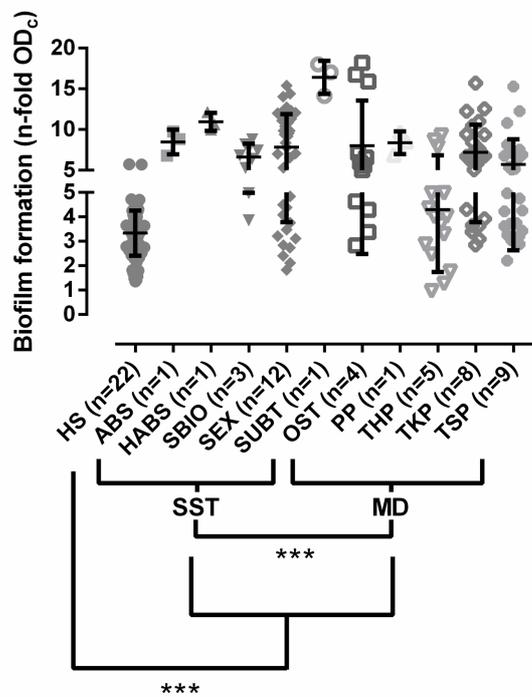
Llanos Salar Vidal¹, John-Jairo Aguilera-Correa¹, Yvonne Achermann², Monica Gonzalez-Sanz¹, Jaime Esteban-Moreno*¹

¹ I.I.S. Fundacion Jimenez Diaz, Madrid, Spain, ² Division of Infectious Diseases, UniversitätsSpital Zürich, Zürich, Switzerland

Background: *Cutibacterium acnes* is a common skin bacterium but can also causes invasive infections such as medical device-associated infections and deep soft-tissue infections (abscesses in most cases). It is known that *C. acnes* biofilm formation is an important virulence factor in these invasive infections. In this study, we compared the biofilm formation of *C. acnes* isolates recovered from healthy skin (HS) and compared it with isolates from soft tissue (SST) and medical device-associated (MD) infections.

Materials/methods: The biofilm formation was investigating using a modified method of Stepanovic *et al.* as a static biofilm assay, using TSB + 1% glucose with a bacterial inocula of 10⁷ CFU/mL at 37°C for 48 hours in anaerobic conditions and crystal violet for staining. Sixty-three *C. acnes* isolates recovered from healthy skin using a cotton swabs (HS, alar and retro auricular creases) (n=22), SST (n=18) and MD infections (n=23) were used. The statistical data were analyzed by nonparametric pairwise comparisons using the nonparametric Wilcoxon test with a level of statistical significance of p<0.05.

Results: All isolates formed biofilms (Figure 1). However, both SST and MD isolates showed significantly more biofilms than HS isolates (3.4-fold ODc for HS, 5.4-fold ODc for MD, and 8.1-fold ODc for SST; p = <0.0001). Among isolated recovered from infections, variation was wide with a higher biofilm formation in SST than in MD isolates.



C acnes.tif

Figure 1. *C. acnes* biofilm formation of different strains. OD_c: Optical density control from protocol of Stepanovic *et al.* ABS: abscess. HABS: hepatic abscess. SBIO: Skin biopsies from carbuncle. SEX: skin exudates from infected wounds. SUBT: subcutaneous tissue from granulomatous disease. OST: Osteosynthesis. PP: Penile prosthesis. THP/TKP/TSP: total hip/knee/shoulder prosthesis. ***: p-value<0.0001.

Conclusions: Showing that both *C. acnes* isolates recovered from the skin surface and from deep infected tissue with or without an implant have the potential to cause an invasive biofilm infection is important for surgical prevention strategies. However, the result of stronger biofilm formation in *C. acnes* recovered from SST as from MD remains unclear and needs to be confirmed by other assays as well as correlation with clinical data and outcome of the patients.

