

P1097

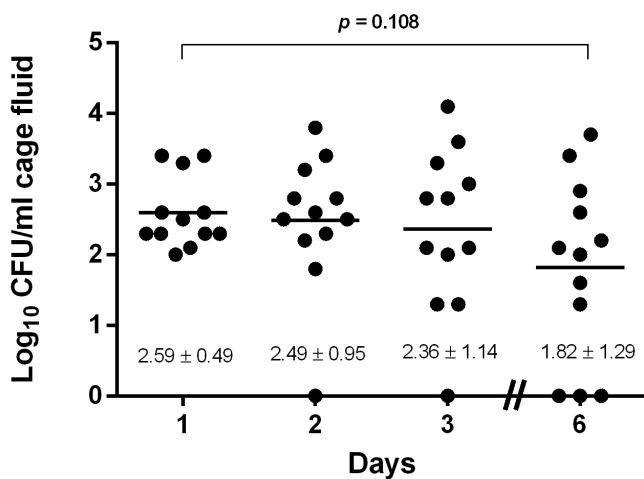
Abstract (poster session)

Pathogenesis of *Candida albicans* biofilm in an experimental foreign-body infection model

E. Maiolo*, U. Furustrand Tabin, B. Betrisey, A. Trampuz (Lausanne, CH)

Objectives: *Candida* biofilms are difficult to treat due to reduced antifungal susceptibility and. We investigated the dynamic of planktonic and biofilm *C. albicans* in an established foreign-body infection model in guinea pigs (Zimmerli 1984). To our knowledge, this is the first description of the infection profile of *C. albicans* in this model. **Methods:** 12 polytetrafluoroethylene (Teflon) cages (32 x 10 mm), perforated by 130 regularly spaced 1-mm holes, were subcutaneously implanted in the flanks of albino male Hartley guinea pigs (weight, 450-500 g). 2 weeks after implantation, cage fluid was aspirated to confirm sterility. Cage-associated infection was established by injecting 200 μ l containing low (3×10^4 CFU) and high (3×10^6 CFU) quantity of *C. albicans* (ATCC 90028) in the cage (day 0). Planktonic *Candida* was quantified in aspirated cage fluid on day 1, 2, 3 and 6 (in CFU/ml), and clearance rate (in %) in cage fluid was determined. On day 6, cages were aseptically removed and cultured in 5 ml Sabouraud dextrose broth (SDB) for 48 h to determine the spontaneous cure rate of *Candida* biofilm (in %). **Results:** Figure represent planktonic *C. albicans* in cage fluid after infection with 10^4 CFU (A) and 10^6 CFU (B). The quantity of planktonic *C. albicans* progressively decreased during 6 days. Horizontal lines represent means, numbers represent mean \pm standard deviation values (in \log_{10} CFU/ml cage fluid). On day 6 (just before explantation), *C. albicans* was cleared from 3/12 cage fluids (24%) with low inoculum and from 1/12 (8%) cage fluids with high inoculum. After explantation, all 12 cages infected either with low or high inoculum grew *C. albicans*. **Conclusion:** The quantity of planktonic *Candida* decreased in cage fluid and was cleared in 8% to 24% of cage fluids. In contrast, *Candida* biofilm persisted on all cages, i.e. no spontaneous cure of cage-associated infections was observed. This characteristic make the guinea pig model suitable for further experiments investigating in vivo activity of antifungals against *Candida* biofilms.

A. Infection with low inoculum (10^4 CFU)



B. Infection with high inoculum (10^6 CFU)

