

SUPPORTING INFORMATION

From wound dressing to tissue regeneration: bi-layer medicated patches for personalized treatments of chronic wounds

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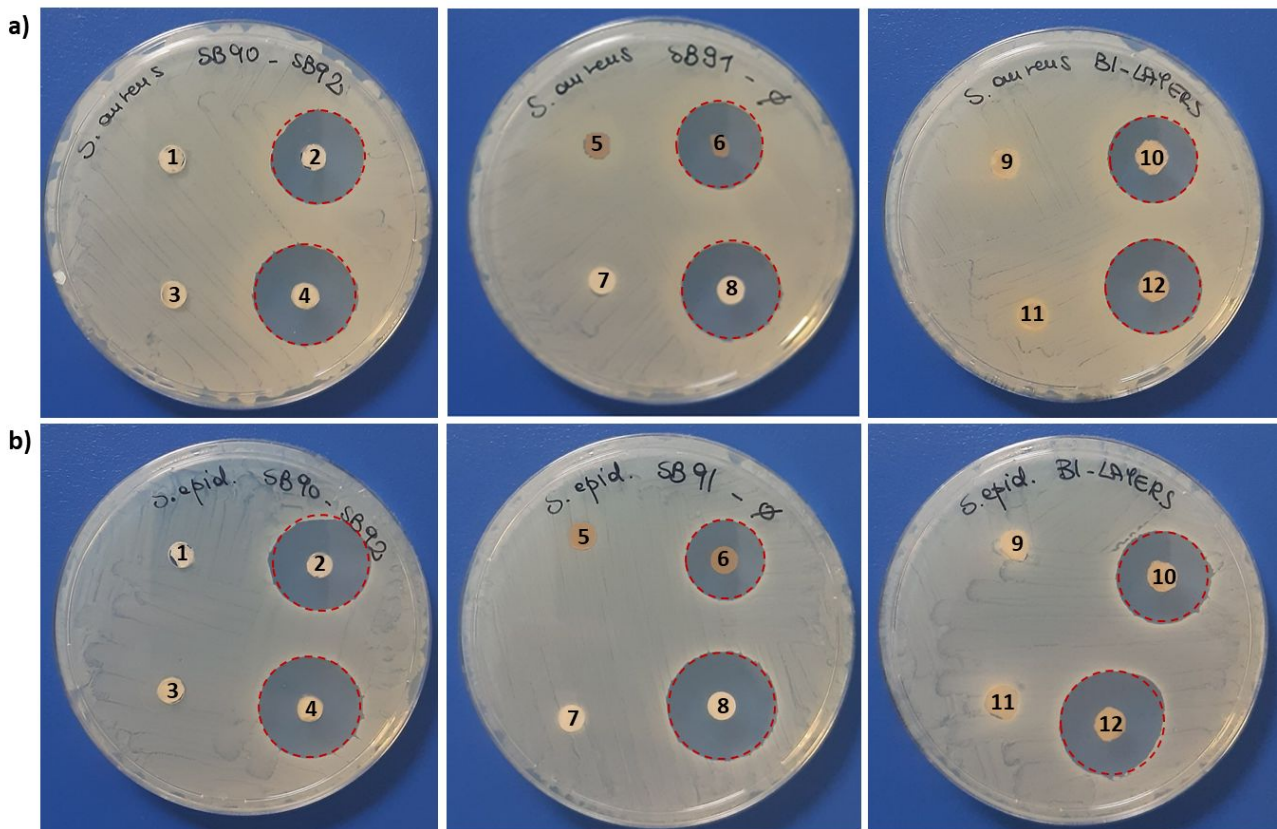


Figure S1: Disk diffusion assays on a) *S. aureus* and b) *S. epidermidis*. Plates were spread with the bacterial suspensions, thereafter the VNC loaded patches and unloaded, as controls, were placed on the agar surface. After an overnight incubation at 37°C, the diameter of the clear halo around the patches was measured using a ruler. List of tested samples: GelMgHA@GelChit3:1_freeze and the corresponding VNC loaded sample (1 and 2); GelMgHA@ChitGly2:1_casting and the corresponding VNC loaded sample (3 and 4); GelMgHA@ChitGly2:1_freeze and the corresponding VNC loaded sample (5 and 6); sterile paper disk and the VNC loaded disk (7 and 8); the BL-1 and the corresponding VNC loaded sample (9 and 10); the BL-2 and the corresponding VNC loaded sample (11 and 12).

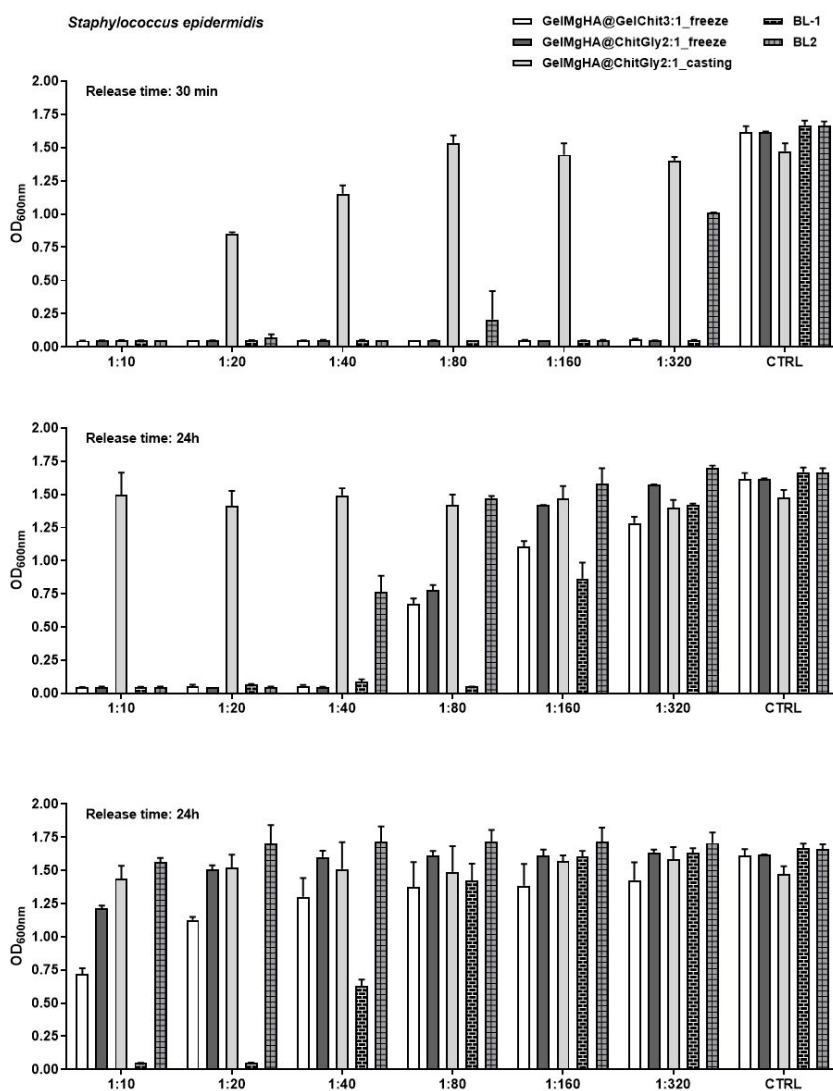


Figure S2: Antibacterial activity against *S. epidermidis* of the VNC released in PBS solutions, at different time intervals, from the patches. Data are the means \pm SD of the Optical Density at 600nm. CTRL, positive growth controls.

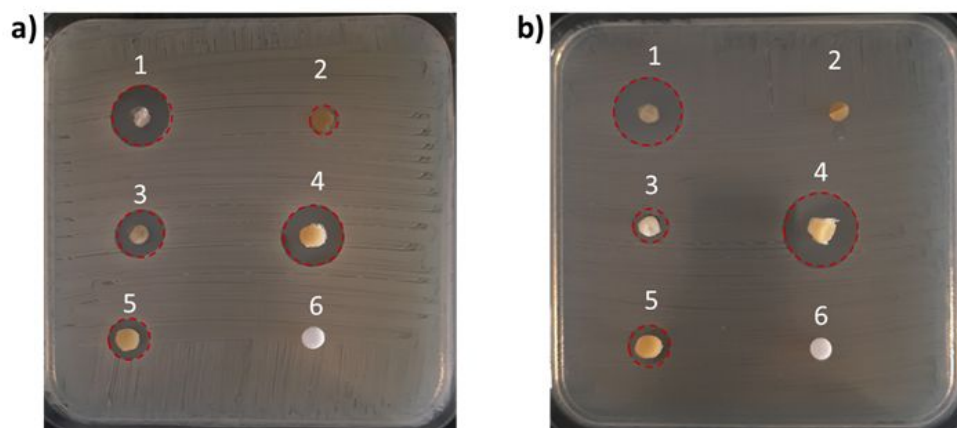


Figure S3: Disk diffusion assays on a) *S. aureus* and b) *S. epidermidis*. Plates were spread with the bacterial suspensions thereafter the VNC loaded patches after 3 days of incubation in PBS were collected and placed on the agar surface. After an overnight incubation at 37°C, the diameter of the clear halo was measured using a ruler. List of tested samples: GelMgHA@GelChit3:1_freeze (1); GelMgHA@ChitGly2:1_casting (2); GelMgHA@ChitGly2:1_freeze (3); BL-1 (4); BL-2 (5); sterile paper disk (6).

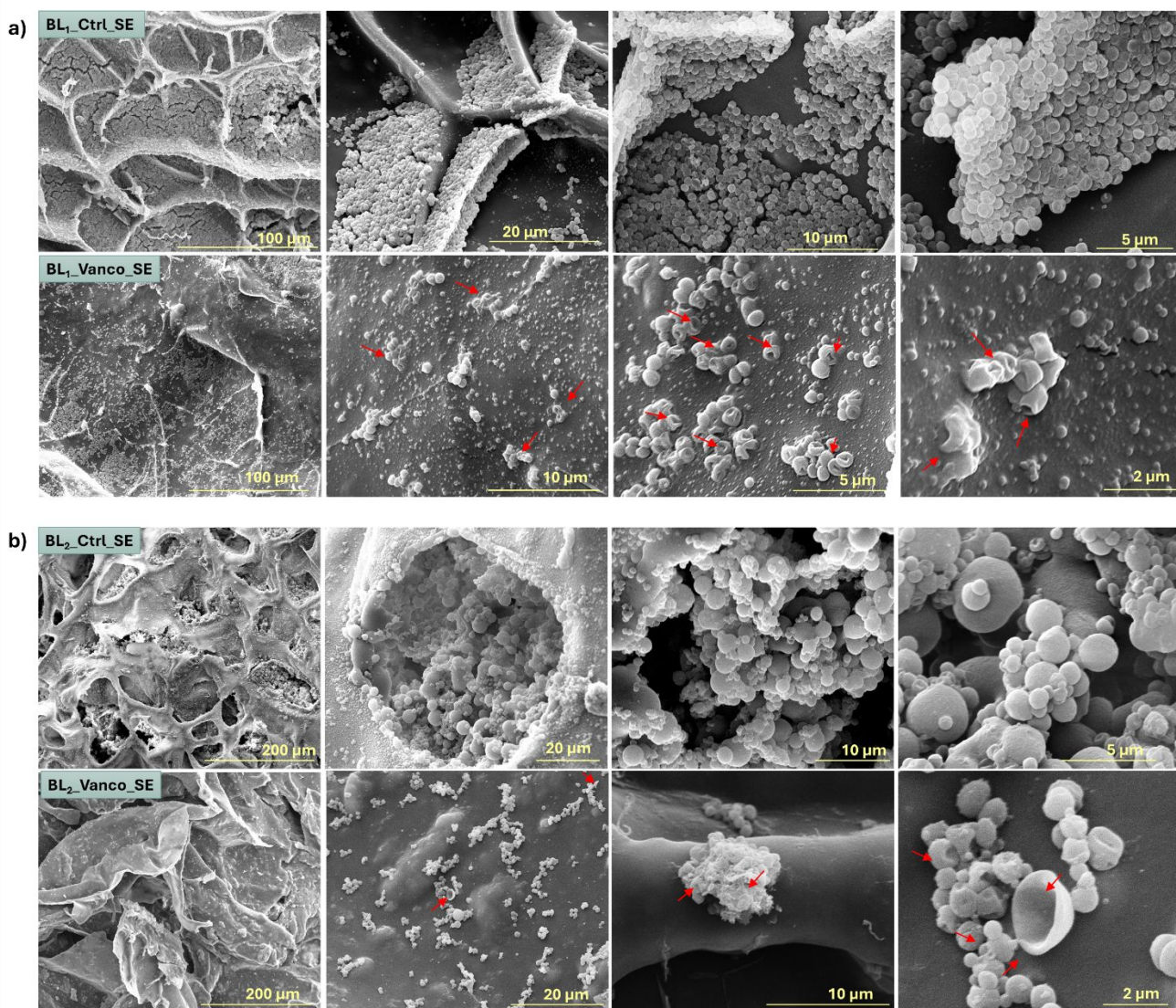


Figure S4: Scanning electron microscopy (SEM) analysis of BL-1 and BL-2 samples both unloaded and loaded with Vancomycin, after 6 hours of incubation with *S. epidermidis* (SE). a) The images refer to BL-1, with unloaded samples at the top and samples loaded with Vancomycin at the bottom. b) The images refer to BL-2, with unloaded samples at the top and samples loaded with Vancomycin at the bottom. Red arrows indicate bacteria with evident alterations of the membrane in the Vancomycin treated patches

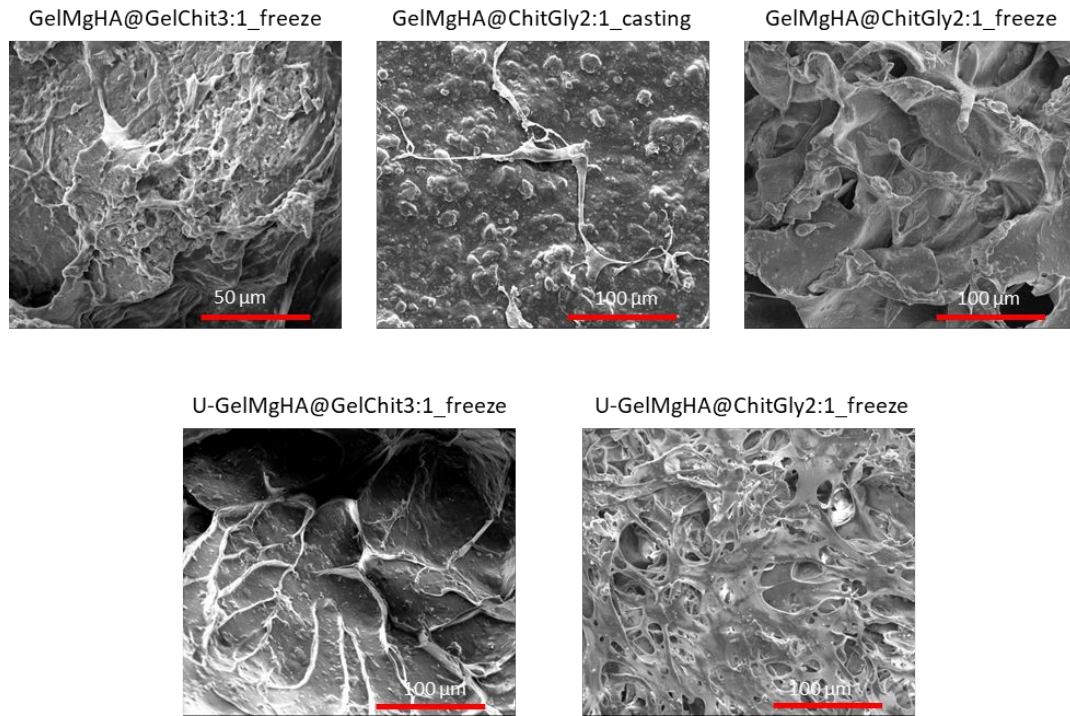


Figure S51: A representative images of SEM analysis of all the scaffolds tested after 3 days post-seeding.

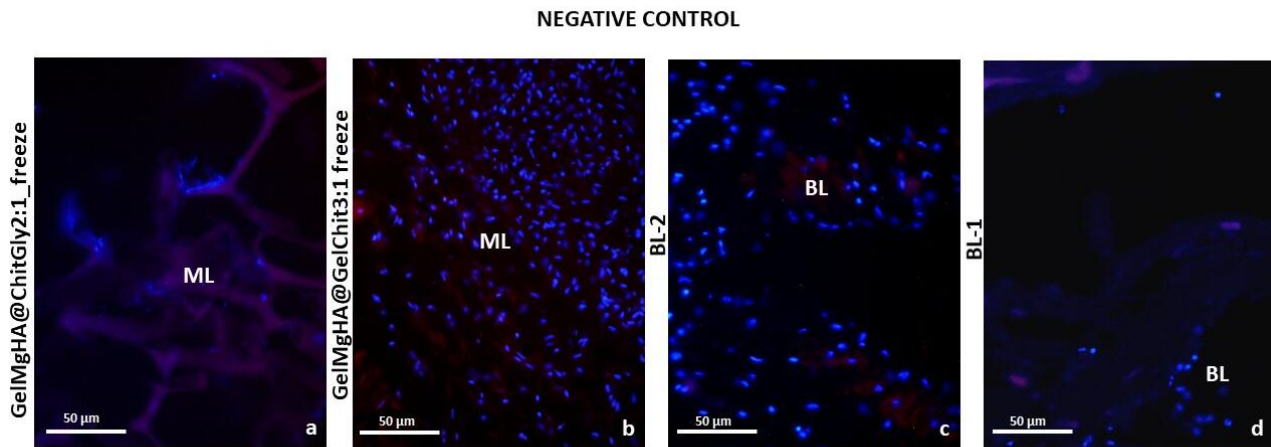


Figure S6: Cross-sections of a leech body wall grafted with the monolayers (ML) GelMgHA@ChitGly2:1_freeze (a), GelMgHA@GelChit3:1_freeze (b), and the bi-layers BL-2 (c) and BL-1 (d) after 7 days post-implantation. No CD154-positive cells are detectable. Nuclei are stained with DAPI (blue).