



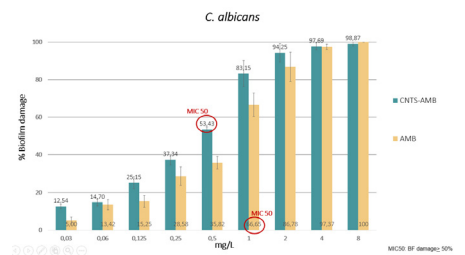
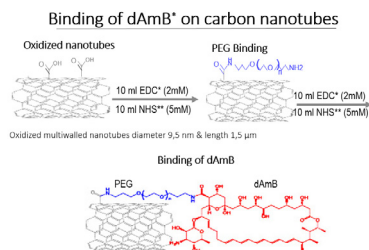
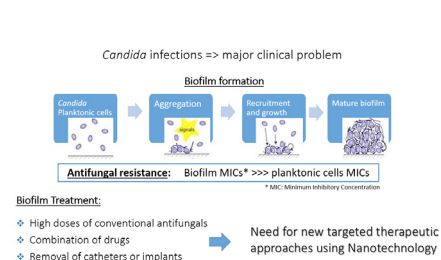
ANTIFUNGAL ACTIVITY OF FUNCTIONALIZED CARBON NANOTUBES (CNTs) WITH AMPHOTERICIN B AGAINST CANDIDA BIOFILMS

Short Description

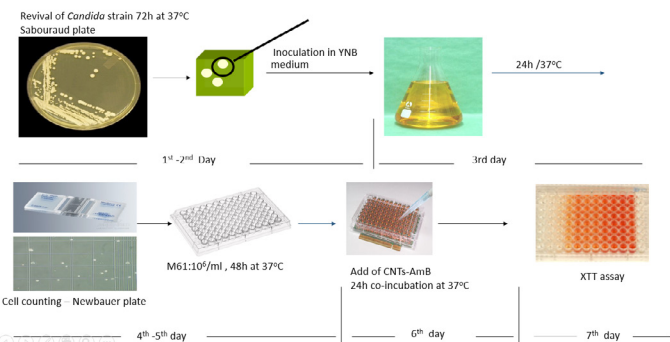
Invasive fungal infections constitute a major clinical problem due to biofilm formation when fungal planktonic cells adhere to surfaces of catheters or implants. To eradicate these biofilms it is often necessary to apply high doses of antifungal agents in combinations or to remove the implants. Nanomaterials have been used in Medicine as drug carriers for targeted therapy. Thus the aim of our study is to investigate whether functionalized carbon nanotubes conjugated to amphotericin B succeed optimal permeation to deeper biofilm layers and cause maximal damage.

Application Field

Useful for patients who carry catheters, implants etc / Oncology – Haematology / Pediatric oncology / Surgery- Transplantations / Neurosurgery / Orthopedics / Cardiology – Cardiac surgery / Intensive care units / Plastic surgery / Rehabilitation centers

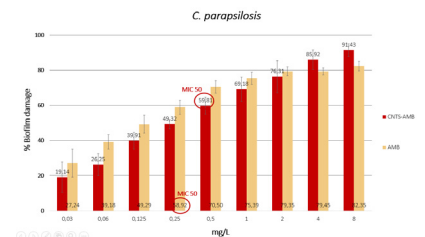


Carbon Nanotubes (CNTs) were functionalized with poly-ethylene-glycol (PEG) to improve the dispersibility properties of CNTs and dAmB was subsequently conjugated to CNTs-PEG by sonication. Stability of the nanotube construct was determined by UV/Vis spectroscopy

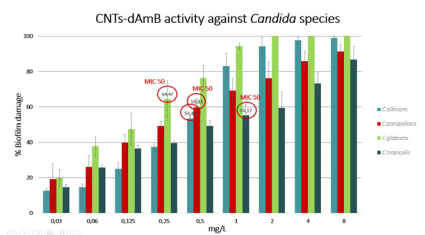


Experimental design: Revival – Growth in YNB Medium – Biofilm formation – Co-incubation with CNTs-dAmB – Assessment of biofilm damage

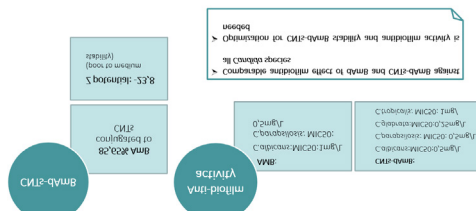
Antibiofilm effect of CNTs-dAmB and AmB alone against *Candida albicans*



Antibiofilm effect of CNTs-dAmB and AmB alone against *Candida parapsilosis*



Antibiofilm effect of CNTs-dAmB against *Candida* species (*C. albicans*, *C. parapsilosis*, *C. glabrata*, *C. tropicalis*)



Results and Conclusions

LABORATORY OF INFECTIOUS DISEASES

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