

# Mcl-Polyhydroxyalkanoate films for biomedical applications

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Polyhydroxyalkanoates (PHAs) have been developed into medical implants, artificial organ constructs, cell scaffolds for tissue replacement, repair and regeneration, wound dressings and drug delivery carriers due to their biocompatibility and versatility. The most common and investigated PHA is poly-3-hydroxybutyrate (PHB), however, medium chain length PHAs (mcl-PHAs) are also attracting interest due to unique properties and specific monomer composition. We have recently reported that mcl-PHA properties can be tuned by incorporation of inorganic components, such as TiO<sub>2</sub> microfibers with unchanged biocompatibility [1]. Mcl-PHA can also be used as an efficient carrier of antifungal polyenes such as amphotericin B and nystatin. Mcl-PHA based polyene formulations showed excellent growth inhibitory activity against both *Candida* yeasts and filamentous fungi (*Aspergillus fumigatus*; *Trichophyton mentagrophytes* and *Microsporum gypseum* ATCC 24102). Antifungal PHA film preparations prevented the formation of a *C. albicans* biofilm, while they were not efficient in eradication of mature biofilms, rendering them suitable for the transdermal application or as coatings of implants [2].

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2. Pekmezovic, M.; Kalagasidis Krusic, M.; Malagurski, I.; Milovanovic, J.; Stępień, K.; Guzik, M.; Charifou, R.; Babu, R.; O'Connor, K.; Nikodinovic-Runic, J. Polyhydroxyalkanoate/antifungal polyene formulations with monomeric hydroxyalkanoic acids for improved antifungal efficiency. *Antibiotics* **2021**, *10* (6), 737.