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Non-Tuberculous Mycobacteria multispecies biofilms in cystic fibrosis: development of an *in vitro Mycobacterium abscessus* and *Pseudomonas aeruginosa* dual species biofilm model

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Abstract

Lung disease in cystic fibrosis (CF) is characterized by the progressive colonization of the respiratory tract by different bacteria, which develop polymicrobial biofilms. In the past decades, there has been an increase in the number of CF patients infected with Non-Tuberculous Mycobacteria (NTM). Although *Mycobacterium abscessus* is the main NTM isolated globally, little is known about *M. abscessus* multispecies biofilm formation. In the present study we developed an *in vitro* model to study the phenotypic characteristics of biofilms formed by *M. abscessus* and *Pseudomonas aeruginosa*, a major pathogen in CF. For that purpose, dual species biofilms were grown on polycarbonate membranes with a fixed concentration of *P. aeruginosa* and different inoculums of *M. abscessus*. The