



## Epidemiology of airway colonization by *Scedosporium apiospermum* during cystic fibrosis

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With a frequency of about 10%, species of the *Scedosporium apiospermum* complex (which comprises at least five distinct species with different antifungal susceptibility patterns) rank the second among the filamentous fungi colonizing the airways in cystic fibrosis (CF). Additionally, it is clearly established that these fungi may disseminate in case of immunodeficiency and that a chronic colonization of the airways by these pathogens may hinder the success of lung transplantation. In this study, we develop a new genotyping method to investigate the epidemiology of the airway colonization by these fungi.

63 multiple and sequential isolates of *S. apiospermum* collected from 9 CF patients, and selected among those previously studied by random amplification of polymorphic DNA (RAPD), were analyzed using the automated typing system DiversiLab (bioMérieux) based on PCR amplification of repetitive sequences. The DiversiLab *Aspergillus* rep-PCR kit which uses specific primers designed for *Aspergillus fumigatus*, was compared with the pan-fungus DiversiLab Fungal kit. Amplification products were separated by capillary electrophoresis on Agilent B2100 bioanalyzer, leading to single profiles for each isolate which were then compared using the DiversiLab software. In addition, species identification of these isolates was clarified by sequencing the betatubulin gene. Results obtained with both kits were comparable. Nevertheless, differentiation was easier using the DiversiLab Fungal kit. Additionally, rep-PCR usually confirmed the colonization patterns described by RAPD. Only two patients showed distinct genotypes. For Patient 2, two isolates were analyzed which were undistinguishable by RAPD, but rep-PCR revealed that they belonged to distinct genotypes, suggesting a transient colonization. For Patient 8 which showed by RAPD two distinct genotypes, 5 genotypes were found by rep-PCR with a dominant one represented by 5 isolates and two very close genotypes (corresponding to 3 isolates), while 4 other isolates belonged to two distant genotypes.

In conclusion, the automated typing system DiversiLab proved to be an easy and efficient method to investigate the molecular epidemiology of the airway colonization by *S. apiospermum* in CF. Our results also confirm the capacity of the different species from the *S. apiospermum* complex to chronically colonize the airways of CF patients.

Résumé en anglais

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