

# Cystic Fibrosis Research News

## Title:

Prevalence, geographic risk factor, and development of a standardized protocol for fungal isolation in cystic fibrosis: Results from the international prospective study “MFIP”

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## What was your research question?

Beside bacteria, there are many other microorganisms in the chest of cystic fibrosis (CF) patients including fungi, which recent research has been shown to be harmful. To better understand the role of such fungi, we conducted an international study named MFIP for "MucoFong International Project".

## Why is this important?

At the moment, different laboratories are using different methods to detect these fungi, making it difficult to determine the full picture of the impact of fungal infections on CF, and limiting the ability to improve patient management. To address this issue, MFIP has been undertaken with the aims to: (i) determine how frequently harmful fungi are isolated from the CF patient sputa (mucus), (ii) compare how well laboratory methods perform in the detection of these fungi, and (iii) standardize a universal laboratory method for the routine detection and identification of these fungi in diagnostic laboratories supporting CF units around the world.

## What did you do?

An international study was set up (<https://www.ecfs.eu/special-projects/mucofong-international-project>) in which all participating centers used the same method, approved by the Lille Ethical Committee (Observational study 2012-042). 469 sputa were collected from CF patients followed-up in 18 European and one Australian CF center. Sputa from CF patients were added onto eight different growth media and inspected for the growth of fungi at least twice weekly during the 15 days incubation (Figure1). By statistical analyses of the obtained results the best way to grow fungi from sputa of CF patients was determined, and resulted in recommendations.

## What did you find?

Fungi were detected more often from sputa of older patients. Fungi are divided into molds and yeasts. Amongst molds, a fungus called *Aspergillus fumigatus* was most frequently isolated (34.5% of sputa), followed by another mold: *Scedosporium* (5.1%). The most frequently isolated yeast was *Candida albicans* (47.7%). We identified a growing European



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North-to-South difference relating to how often *Scedosporium* was isolated, while yeasts, *Aspergillus* and other molds were more common in the Northern regions.

Regarding recommendations, CF laboratories should employ 2 media, called Yeast-Peptone-Dextrose-Agar or Sabouraud, and B(+), which should be supplemented with another medium when looking for *Scedosporium* or *Exophiala*.

## **What does this mean and reasons for caution?**

Results from this MFIP study have generated a better understanding of what fungi are present in the lungs of CF patients, highlighting age differences as well as geographical differences amongst fungi found in sputa of CF patients. The study reinforces the importance of regular checking of sputa from CF patients for the presence of fungi, even if they feel well, as recommended by most current clinical guidelines.

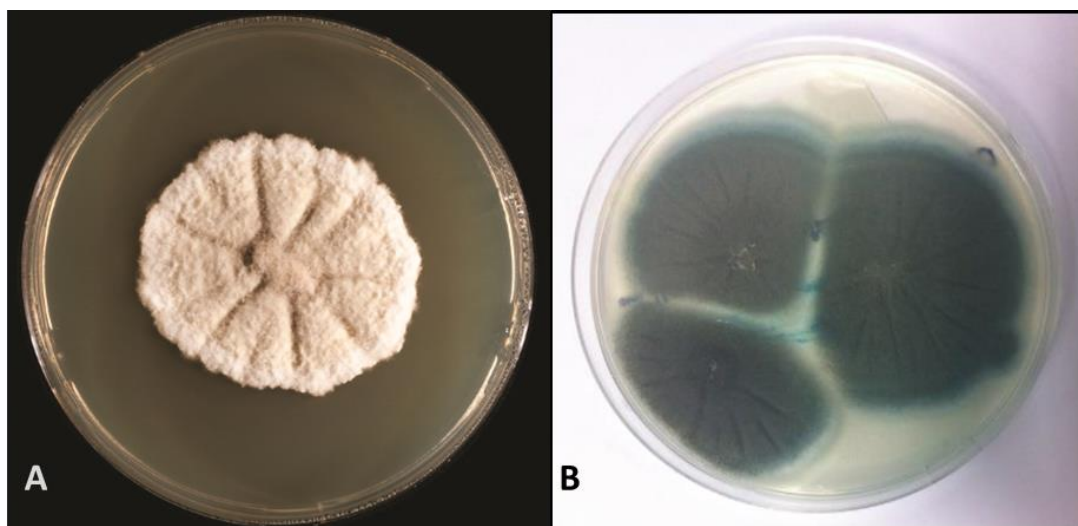
## **What's next?**

Using the new methods recommended here will help to work out how lung function is impacted by the presence of fungi, and if certain fungi are worse than others.

## **Original manuscript citation in PubMed**

<https://www.ncbi.nlm.nih.gov/pubmed/?term=Prevalence%2C+geographic+risk+factor%2C+and+development+of+a+standardized+protocol+for+fungal+isolation>

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**Figure 1:** The appearance of *Scedosporium apiospermum* (A) and *Aspergillus fumigatus* (B) on Sabouraud growth medium.