

# Cystic Fibrosis Research News

## Title:

Study of 109 *Achromobacter spp.* isolates from 9 French CF centres reveals the circulation of a multiresistant clone of *A. xylosoxidans* belonging to ST 137.

## Authors:

Lucie Amoureux<sup>1,2</sup>, Juliette Sauge<sup>1</sup>, Benoit Sarret<sup>1</sup>, Matthieu Lhoumeau<sup>1</sup>, Audrey Bajard<sup>1</sup>, Jennifer Tetu<sup>1</sup>, Julien Bador<sup>1,2</sup>, Catherine Neuwirth<sup>1,2</sup>; MucoMicrobes group<sup>3</sup>

## Affiliations:

<sup>1</sup>Department of Bacteriology, University Hospital of Dijon, BP 37013, 21070 DIJON CEDEX FRANCE

<sup>2</sup>UMR/CNRS 6249 Chrono-environment, University of Franche-Comté, Besançon, France

<sup>3</sup>Collaborators, MucoMicrobes group Jocelyne Caillon, Emilie Cardot-Martin, Vincent Cattoir; Anne Doléans-Jordheim; Agnès Ferroni, Hélène Guet-Revillet, Geneviève Héry-Arnaud, Christine Segonds, Elise Thomas, Patrick Plésiat, Hoang Vu-Thien.

## What was your research question?

*Achromobacter* are emerging bugs found in the lungs of some people with CF worldwide, but are not well known. We wanted to compare the data from 9 French CF centres to see if some kinds of *Achromobacter* are more frequently recovered and which antibiotics work best against them.

## Why is this important?

Little is known about how the bugs belonging to the group of *Achromobacter* cause harm to people with CF. It is not clear when antibiotics should be used if *Achromobacter* is found. Currently, there are at least 18 different subgroups (species) in this group of bugs. Some species or some particular types (ST) within each species might be more involved in infections or more difficult to treat with antibiotics than others. To answer these questions it is important to first describe what kinds are usually found in the sputum from people with CF, and studies in more centres are good tools to detect the most important ones.

## What did you do?

In 2014 we collected 109 *Achromobacter* samples (strains, 1 strain for each patient) from 9 French CF Centres different from our own. We identified the species of these strains by molecular (DNA) analysis of a gene called *nrdA*. Then, using a method called Multilocus Sequence Typing (MLST), we compared the types of strains identified in the different centres

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with the ones already analysed in our centre and worldwide. We also determined the sensitivity of these bacteria to the antibiotics that are commonly used to treat the patients.

## What did you find?

In the 9 centres we found that the species *A. xylosoxidans* accounted for almost three quarters of the cases. The most active antibiotics were piperacillin-tazobactam, ceftazidime, imipenem and meropenem. MLST revealed a wide range of *A. xylosoxidans* types among the patients, but also, for the first time in France, that several particular types were found in patients originating from different centres. Interestingly, we found that 5 patients (from 4 centres) were colonised with the same type (ST 137) and that this type of strain was highly resistant to antibiotics. In our centre we had previously found this type of strain in 2 patients with chronic infection.

## What does this mean and reasons for caution?

These results confirm that *A. xylosoxidans* is the species the most commonly found among people with CF in France, as has already been described in other countries. Moreover, one type of strain (*A. xylosoxidans* belonging to ST 137) has been detected in several CF centres and happens to be highly resistant to antibiotics. The origin of the strain and how it has been spread still need to be looked into. These results should be taken cautiously because we do not yet know if this strain can cause more harm to people with CF or if it is just more adapted to the lungs of these people.

## What's next?

This study pointed out that some types of strains might be more likely to be present in the lungs of people with CF. The next step will be to determine if these strains, like *A. xylosoxidans* ST 137, are more harmful for the people with CF or not. This will guide the doctors in the treatment of their patients.

## Original manuscript citation in PubMed

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