

### Working Group Interim Report

1	Title of Working Group	<b>Fungal respiratory infections in Cystic Fibrosis (Fri-CF)</b>
2	Name(s) of Coordinator(s)	Pr. Jean-Philippe Bouchara (Angers, France), Dr. Françoise Symoens (Brussels, Belgium) and Dr. Andrew Borman (Bristol, United Kingdom)
3	Objectives	Work together for a better knowledge on the epidemiology of fungal respiratory infections in cystic fibrosis, the ecology of the causative agents, the pathophysiology of the airway colonization / respiratory infections, and identification of new antifungal targets, improvement of the biological diagnosis and therapeutic management of the patients, and exchange information about these topics.
4	Achievements of the Working Group in last year (250 words)	<p>During 2013, three invited lectures were given by members of our working group in international congresses:</p> <ul style="list-style-type: none"> <li>▪ <b>Bouchara J.P.</b>, Giraud S., Fleury M. and Marot A. Fungal detection in the real world? 36th ECFS Conference, Lisbon (Portugal), 2013, June 12-15.</li> <li>▪ <b>Delhaes L.</b> Metagenome: fungal and bacterial interactions. 36th ECFS Conference, Lisbon (Portugal), 2013, June 12-15.</li> <li>▪ <b>Bouchara J.P.</b>, Giraud S., Fleury M. and Marot A. Weird moulds: pathogenic or innocent bystanders? 6<sup>th</sup> Trends in Medical Mycology, Copenhaguen (Denmark), 2013, October 11-14.</li> </ul> <p>Likewise, since the beginning of 2014, two other invited lectures were given with mention of our working group</p> <ul style="list-style-type: none"> <li>▪ <b>Pihet M.</b>, Giraud S., Rougeron A. and Bouchara J.P. Update on laboratory diagnosis of <i>Aspergillus</i> infection. 14<sup>th</sup> Killarney National Cystic Fibrosis Meeting, Killarney (Ireland), 2014, February 7.</li> <li>▪ <b>Pihet M.</b>, Giraud S., Marot-Leblond A., Fleury M. and Bouchara J.P. Detecting filamentous fungi in CF. 114th General Meeting of the American Society for Microbiology, Boston (MA, USA), 2014, May 17-20.</li> </ul> <p>More recently, the third meeting of our working group was held last June (5-6) in Angers (France). This meeting encompassed 74 attendants (including 5 PhD students, and 4 young colleagues who presented the defense of their thesis during the past months) coming from 13 countries including the USA and Australia, and for the first time from Sweden, Poland and Slovenia. 35 talks were given covering all topics: clinical surveillance, biological</p>

diagnosis and antifungal resistance and treatment, pathogenesis of the airway colonization/respiratory infections, or epidemiology and ecology of the pathogens.

Six papers mentioning the working group were also published:

- Zouhair R., Rougeron A., Razafimandimby B., Kobi A., Bouchara J.P. and Giraud S. Distribution of the different species of the *Pseudallescheria boydii* / *Scedosporium apiospermum* complex in French patients with cystic fibrosis. *Med. Mycol.*, 2013, 51 : 603-613.
- Güngör O, Tamay Z, Güler N, Erturan Z. Frequency of fungi in respiratory samples from Turkish cystic fibrosis patients. *Mycoses*, 2013, 56 : 123-129.
- Chotirmall SH, McElvaney NG. Fungi in the cystic fibrosis lung: Bystanders or pathogens? *Int J Biochem Cell Biol*, 2014, 52C:161-173.
- Giraud S., Favennec L., Bougnoux M.E. and Bouchara J.P. *Rasamsonia argillacea* species complex: taxonomy, pathogenesis and clinical relevance. *Future Microbiol.*, 2013, 8 : 967-978.
- Rougeron A., Giraud S., Razafimandimby B., Meis J.F., Bouchara J.P. and Klaassen C. Different colonization patterns of *Aspergillus terreus* in patients with cystic fibrosis. *Clin. Microbiol. Infect.*, 2014, 20 : 327-333.
- Rougeron A., Schuliar G., Leto J., Sitterlé E., Landry D., Bougnoux M.E., Kobi A., Bouchara J.P., and Giraud S. Human-impacted areas of France are environmental reservoirs of the *Pseudallescheria boydii* / *Scedosporium apiospermum* species complex. *Environ. Microbiol.*, 2014 Mar 31.

In addition to the last three papers, 4 other collaborative works were published:

- Houbraken J., Giraud S., Meijer M., Bertout S., Frisvad J., Meis J., Bouchara J.P. and Samson R. Taxonomy and antifungal susceptibility of clinical important *Rasamsonia* species. *J. Clin. Microbiol.*, 2013, 51 : 22-30.
- Steinmann J., Giraud S., Schmidt D., Sedlacek L., Hamprecht A., Houbraken J., Meis J.F., Bouchara J.P., Buer J. and Rath P.M. Development and validation of a real-time PCR for detecting *Rasamsonia argillacea* species complex in respiratory secretions from cystic fibrosis patients. *Accepted pour publication dans New Microbes and New Infections*.
- Sitterlé E., Giraud S., Leto J., Bouchara J.P., Rougeron A., Morio F., Dauphin B., Angebault C., Quesnes G., Beretti J.L., Hassouni N., Nassif X. and Bougnoux M.E. Matrix-assisted laser desorption ionization-time of flight (MALDI-TOF) Mass Spectrometry for fast and accurate identification of *Pseudallescheria/Scedosporium* species". *Clin. Microbiol. Infect.*, 2014 Jan 30. [Epub ahead of print].
- Parize P., Billaud S., Bienvenu A.L., Bourdy S., le Pogam M.A., Reix P., Picot S., Robert R., Lortholary O., Bouchara J.P. and Durieu I. Impact of *Scedosporium apiospermum*

		<p>complex seroprevalence in patients with Cystic Fibrosis prior to transplantation. J. Cyst. Fibros., 2014 Feb 12. [Epub ahead of print].</p> <p>A multicenter study has been performed in 2013 encompassing 19 labs, mainly from Europe, but also the USA and Australia, which all agree to use the same procedure for mycological examination of sputum samples from CF patients, with the objective to define guidelines for mycological examination of respiratory secretions from CF patients. Labs participating to this study were as follows :</p> <ul style="list-style-type: none"> <li>▪ France: <b>Angers</b> (J.P. Bouchara), <b>Lille</b> (L. Delhaès), <b>Rouen</b> (L. Favennec), <b>Nantes</b> (P. Lepape / F. Morio), <b>Besançon</b> (F. Grenouillet), <b>Brest</b> (G. Nevez / S. Legal), <b>Grenoble</b> (M. Cormet / C. Pinel), <b>Paris-Créteil</b> (F. Botterel), <b>Paris-George Pompidou</b> (E. Dannaoui)</li> <li>▪ Belgium: <b>Leuven</b> (K. Lagrou / V. Saegeman)</li> <li>▪ Italia: <b>Firenze</b> (S. Campana / L. Cariani); <b>Ancona</b> (E. Manso); <b>Milano</b> (A. Biffi); <b>Roma</b> (E. Fiscarelli)</li> <li>▪ United Kingdom: <b>Bristol</b> (A. Borman)</li> <li>▪ Spain: <b>Madrid</b> (L. Maiz / R. Canton / E. Gómez Garcia de la Pedrosa)</li> <li>▪ Austria: <b>Graz</b> (W. Buzina)</li> <li>▪ Greece: <b>Thessaloniki</b> (E. Roilides)</li> <li>▪ Australia: <b>Sidney</b> (T. Sorrell / S. Chen / W. Meyer)</li> </ul> <p>Results are currently being analyzed to write a collaborative paper and to propose international guidelines.</p> <p>Finally, a joint answer for call for proposals was submitted by some members of the working group (Gilead goSHAPE grant programme - M.T. Montagna in Ancona, Italia, and J.P. Bouchara, in Angers, France) and first guidelines for mycological examination of sputum samples from CF patients were written by J.P. Bouchara and L. Delhaès on behalf the French association against cystic fibrosis that will be published in a few months by the French Society for Microbiology.</p>
5	Is your Working Group going to continue for the next three years?	<p>Works performed during the past decades on bacterial infections have led to a marked increase in life expectancy because of improvement in treatment and prevention of these infections. Nevertheless, progress are still needed, and more than ever attention should be focused on non bacterial pathogens, especially fungi. In this context, our working group will continue its activities during the next years.</p> <p>For 2015, it has been proposed a session on our research topic during the next ISHAM congress in Australia.</p> <p>Collaborative studies have been discussed at the end of</p>

		<p>the third meeting of our working group last June, regarding:</p> <ul style="list-style-type: none"><li>▪ genome analysis for the different pathogenic species in the <i>Scedosporium</i> genus, the genome of <i>S. apiospermum sensu stricto</i> being now fully sequenced and annotated,</li><li>▪ the epidemiology of the airway colonization/ respiratory infections by species of the <i>Rasamsonia argillacea</i> complex,</li><li>▪ the clinical significance of chronic airway colonization by yeasts or filamentous fungi,</li><li>▪ and the validation of some PCR-based methods for detection of some uncommon moulds (<i>Rasamsonia argillacea</i>, <i>Exophiala dermatitidis</i>, <i>Scedosporium</i> species) in multicenter studies.</li></ul> <p>Finally, we are pleased to welcome 19 new members in our working group: Drs. Amandine Gastebois, Agnès Marot-Leblond, Maxime Fleury and Patrick Vandeputte (Angers, France), Dr. Solène Le Gal and Pr. Gilles Nevez (Brest, France), Dr. Dominique Toubas (Reims, France), Drs. Ersilia Fiscarelli and Gabriella Ricciotti (Rome, Italy), Dr. Elisa Borghi (Milan, Italy), Dr. Sean Zhang (Baltimore, USA), Dr. Rafael Canton and Elia Gomez G. de la Pedrosa (Madrid, Spain), Dr. Maria Teresa Martin-Gomez (Barcelona, Spain), Dr. Carsten Schwartz (Berlin, Germany), Pr. Jose A. Vazquez (Augusta, USA), Pr. Nina Gunde-Cimermann (Ljubjana, Slovenia), Drs. Darius Armstrong-James and Nicholas Simmonds (London, UK). An updated list of members will be sent in the next days (together with the abstract book of our last meeting and with slides of the speakers) to the webmaster of the ISHAM website due to numerous changes (changes in addresses or activities of some previous members, retirement of two members of the working group and unfortunately death of another member).</p>
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