

### Working Group Interim Report 2017

1	Title of Working Group	<i>Aspergillus terreus</i>
2	Name(s) of Coordinator(s)	Cornelia Lass-Flörl
3	Objectives	<ol style="list-style-type: none"> <li>1. Explore the genetic diversity and population dynamics of <i>A. terreus</i>. Under this aim, we propose to: <ol style="list-style-type: none"> <li>a) develop a comprehensive culture repository comprising both clinical and environmental isolates of <i>A. terreus</i> and other isolates in section <i>Terrei</i>,</li> <li>b) design a multilocus sequence typing scheme (MLST) for species identification in Section <i>Terrei</i>,</li> <li>c) using the repository and the MLST scheme, generate data on the genetic diversity and population dynamics of <i>A. terreus</i>,</li> <li>d) establish a new typing method based on the polymorphism of tandem repeats in <i>A. terreus</i>,</li> <li>e) recognize and validly publish new species.</li> </ol> </li> <li>2. Understand the epidemiology of <i>A. terreus</i> by <ol style="list-style-type: none"> <li>a) developing a microsatellite marker panel for strain discrimination and use test this panel on several environmental and clinical isolates of <i>A. terreus</i> to understand the molecular epidemiology of this organism</li> <li>b) elucidating the clinical epidemiology of <i>A. terreus</i></li> </ol> </li> <li>3. Investigate amphotericin B resistance in <i>A. terreus</i>.</li> <li>4. Study immune response and virulence potential of <i>A. terreus</i>.</li> <li>5. To set up animal models to establish in vivo and in vitro correlation.</li> <li>6. To study clinical infections.</li> <li>7. To create an <i>A. terreus</i> proteome map.</li> <li>8. Database A web-based data base will be built up and made accessible for all participants for studies.</li> <li>9. Prepare a genomic bank for <i>A. terreus</i> which will be use for the identification and characterization of some putative virulence factors of the fungus (e.g. anti-oxidant systems, proteases, etc.).</li> <li>10. Exo-metabolomics on <i>Aspergillus terreus</i> and related species.</li> </ol>
4	Achievements of the Working Group in last year (250 words)	<ol style="list-style-type: none"> <li>1. The "TerrNet -A Global <i>Aspergillus terreus</i> Surveillance Study (An initiative of the ISHAM <i>Aspergillus terreus</i> working group and ECMM)" - still running: <ol style="list-style-type: none"> <li>a) Clinical data collection: done</li> <li>b) Strain collection: still done</li> <li>c) Susceptibility testing: done with amphotericin B, under construction with azoles</li> </ol> </li> </ol>

		<p>d) typing: ongoing</p> <p>2. Genetic diversity and population dynamics: done</p> <p>3. Investigating <i>A. terreus</i> resistance: done</p> <p><b>Publications from our group regarding <i>Aspergillus terreus</i>:</b></p> <p>Risslegger B et al. A prospective international <i>Aspergillus terreus</i> survey: an EFISG, ISHAM and ECMM joint study. <i>Clin Microbiol Infect.</i> 2017 Oct;23(10):776.e1-776.e5</p> <p>Vaezi A et al. In vitro antifungal activity of amphotericin B and 11 comparators against <i>Aspergillus terreus</i> species complex. <i>Mycoses.</i> 2018 Feb;61(2):134-142.</p> <p>Jukic E et al. Impact of Morphological Sectors on Antifungal Susceptibility Testing and Virulence Studies. <i>Antimicrob Agents Chemother.</i> 2017 Nov 22;61(12).</p> <p>Jukic E et al. Oxidative Stress Response Tips the Balance in <i>Aspergillus terreus</i> Amphotericin B Resistance. <i>Antimicrob Agents Chemother.</i> 2017 Sep 22;61(10).</p> <p>Espinel-Ingroff A et al. Multicenter Study of Method-Dependent Epidemiological Cutoff Values for Detection of Resistance in <i>Candida</i> spp. and <i>Aspergillus</i> spp. to Amphotericin B and Echinocandins for the Etest Agar Diffusion Method. <i>Antimicrob Agents Chemother.</i> 2016 Dec 27;61(1).</p>
5	Is your Working Group going to continue for the next three years?	yes