

ISHAM Working Group Annual Report 2019

1. Title of Working Group

Aspergillus terreus

2. Name(s) of Coordinator(s) with email addresses

Cornelia Lass-Flörl; cornelia.lass-floerl@i-med.ac.at

3. Website URL for external website (if relevant)

4. Objectives and expected outcomes for the forthcoming year

1. Explore the genetic diversity and population dynamics of *A. terreus*. Under this aim, we propose to:
 - a) develop a comprehensive culture repository comprising both clinical and environmental isolates of *A. terreus* and other isolates in section *Terrei*,
 - b) design a multilocus sequence typing scheme (MLST) for species identification in Section *Terrei*,
 - c) using the repository and the MLST scheme, generate data on the genetic diversity and population dynamics of *A. terreus*,
 - d) establish a new typing method based on the polymorphism of tandem repeats in *A. terreus*,
 - e) recognize and validly publish new species.
2. Understand the epidemiology of *A. terreus* by
 - a) developing a microsatellite marker panel for strain discrimination and use test this panel on several environmental and clinical isolates of *A. terreus* to understand the molecular epidemiology of this organism
 - b) elucidating the clinical epidemiology of *A. terreus*
3. Investigate amphotericin B resistance in *A. terreus*.
4. Study immune response and virulence potential of *A. terreus*.
5. To set up animal models to establish in vivo and in vitro correlation.
6. To study clinical infections.
7. Database
A web-based data base will be built up and made accessible for all participants for studies.
8. Prepare a genomic bank for *A. terreus* which will be use for the identification and characterization of some putative virulence factors of the fungus (e.g. anti-oxidant systems, proteases, etc.).

5. Achievements of the Working Group in 2019 (250 words) ¹⁻³

A cooperation was set with Westerdijk Fungal Biodiversity Institute: main goal: Typing of *A. terreus*

Azole-resistance in *A. terreus* has been investigated.

A comprehensive culture collection worldwide was set.

More data are obtained with sectoring in *A. terreus*

6. Publications arising from the Working Group

Vahedi Shahandashti R, Lass-Flörl C. Antifungal resistance in *Aspergillus terreus*: A current scenario. *Fungal Genet Biol.* 2019 Oct;131:103247

Lackner M, Obermair J, Naschberger V, Raschbichler LM, Kandelbauer C, Pallua J, Metzlaß J, Furxer S, Lass-Flörl C, Binder U. Cryptic species of *Aspergillus* section *Terrei* display essential physiological features to cause infection and are similar in their virulence potential in *Galleria mellonella*. *Virulence.* 2019 Dec;10(1):542-554.

Lackner M, Birch M, Naschberger V, Grässle D, Beckmann N, Warn P, Gould J, Law D, Lass-Flörl C, Binder U. Dihydroorotate dehydrogenase inhibitor olorofim exhibits promising activity against all clinically relevant species within *Aspergillus* section *Terrei*. *J Antimicrob Chemother.* 2018 Nov 1;73(11):3068-3073

7. Funding provided by ISHAM in the past 3 years (Budget and year)

None

8. Composition of the working group

Number of working group members: 62

Number of ISHAM members among WG members: information not available

¹ The achievement arising from the Working Group with acknowledge its status within ISHAM by explicitly including the phrase “ISHAM Working Group” in all public and professional publications, workshop programs, lectures, its website or similar activities.

² Achievements of the Working Group include but not limited to the following:

- meeting/workshop/training course/symposium of the working group,
- peer-reviewed publication,
- presentation (symposium, oral or poster paper) from working group during ISHAM congress,
- contribute material to the main ISHAM website and its regular newsletter.
- Increase ISHAM members, strengthen link between ISHAM and working group, and enhance visibility of ISHAM.

³ Supporting information for achievements are welcome.

Please complete and return to Dr. Yee-Chun Chen (yeechunchen@gmail.com) by February 7, 2019

Reports will be placed on the ISHAM webpage (<https://www.isham.org/working-groups>) for the respective working group.