Presentation by

PROFESSOR Tsuyoshi YAMADA

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An overview of mechanisms of antifungal drug resistance in dermatophytes

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REGISTRATION BY :

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Introduction & context of the presentation

In addition to bacterial and parasitic infections, fungal infections are also a major threat to public health. Antifungal resistance has long been an under-recognised component of antimicrobial resistance but is now considered an emerging crisis worldwide. This includes superficial skin mycoses such as dermatophytoses, some of which are caused by pathogenic fungi that become resistant to all authorised systemic antifungal drugs.

It is therefore extremely important to understand the emergence of resistance in dermatophytes and the molecular and cellular mechanisms involved, to guide research and the development of future therapies.

In this context, I am very honoured and pleased to welcome Professor Tsuyoshi YAMADA (Tokyo, Japan), who is one of the world leaders in research on the mechanisms of antifungal resistance in dermatophytes. His lecture will be given under the auspices of the Belgian Society of Human and Animal Mycology and its current President, Professor Marie-Pierre HAYETTE.

Professor Bernard MIGNON, Department of Infectious and Parasitic Diseases – Mycology, Faculty of Veterinary Medicine, FARAH (Fundamental and Applied Research for Animals & Health), University of Liège

Professor Tsuyoshi YAMADA's background

Tsuyoshi Yamada was born in Japan on 15 August 1968. He obtained his PhD from the Graduate School of Bioagricultural Sciences at Nagoya University in October 2001. Since April 2012, he has been Associate Professor at the Institute of Medical Mycology at Teikyo University, Japan.

Over the last twenty years, Professor YAMADA has conducted research on human pathogenic fungi, in particular dermatophytes, which are responsible for most superficial fungal infections of the skin, hair and nails. His initial focus was on the mechanisms by which dermatophytes invade the host. As the tools for genetically manipulating dermatophytes did not exist at the time, Professor YAMADA developed them himself. In particular, he was the first in the world to create dermatophyte mutants using specific genetic manipulation tools, which enabled him to begin collaborative research on the pathogenesis of dermatophytosis with Professors Michel MONOD (Switzerland) and Bernard MIGNON (Belgium). In addition, over the last 10 years, he has initiated research into antifungal drug resistance in dermatophytes with Professor MONOD and has published several important original articles in this field.

Presentation Summary

Dermatophytoses, or tinea, are superficial fungal infections caused by dermatophytes, which affect the skin and keratinised structures such as hair and nails. Since around 2017, dermatophytes with resistance to antifungal drugs have been isolated one after another in different countries, constituting a significant health problem. During this conference, the mechanisms of resistance of dermatophytes to terbinafine and azole compounds, such as itraconazole, will be dissected based on available published data and ongoing personal studies.

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