Curriculum Vitae

Personal details

Name: Wendy W.J. van de Sande, PhD
Gender: Female
Date of Birth: 01 February 1980, Breda
Nationality: Dutch

Curriculum Vitae

June 1998 Diploma VWO, Koning Willem II College, Tilburg

24-06-2002 BSc degree, Hogeschool Brabant, cum laude

2002-2004 Research technician, ErasmusMC, Department of Medical Microbiology and Infectious Diseases

24-10-2007 PhD, ErasmusMC, Department of Medical Microbiology and Infectious Diseases, cum laude. Promotor: Prof. dr. dr. A. van Belkum.

Thesis: Genetic Variability, Antigenicity and Antifungal Susceptibility of *Madurella mycetomatis*Since 2007 Senior researcher, Department of Medical Microbiology and Infectious Diseases

Responsibilities: Research and supervising research projects. Field of research: Medical Mycology, mainly focussed on *Aspergillus fumigatus* and *Madurella mycetomatis.* Teaching in Medical Microbiology and Infectious Diseases.

Brief summary of research over the last five years

Over the last five years various novel DNA manipulation techniques such as cloning and protein expression, immunologic assays and *in vitro* susceptibility assays were developed for *Madurella mycetomatis*. In addition, a mouse model of *M. mycetomatis*

infection was developed. It was discovered that *M. mycetomatis* obtained from large lesions were genetically different from isolates obtained from small lesions. Furthermore, significant differences in genes involved in neutrophil function and sex hormone synthesis in the human host were discovered. During mycetoma, higher 17β-estradiol, interleukin-8 and lower nitrogen oxide levels were noted. Also, a homologue of the translationally controlled tumour protein (TCTP) as a first antigen of *M. mycetomatis*, was discovered. The antibody responses against TCTP appeared to correlate with lesion size. In order to gain more insight in the antifungal susceptibility of *M. mycetomatis* novel assays were developed to assess the susceptibility against commercial and alternative antifungal agents. Finally, it was demonstrated that *M. mycetomatis* forms melanin via the DHN-melanin synthesis pathway (*in vitro* and *in vivo*), which appeared to protect the fungus in the host environment against oxidants and antifungal agents. For *A. fumigatus in vitro* antifungal susceptibility assays were performed. Therapeutic efficacy studies with voriconazole and caspofungin were done in our rat model of invasive pulmonary aspergillosis.

Publications

1. Ahmed, A., **W. W. J. van de Sande,** H. Verbrugh, A. Fahal, and A. van Belkum. 2003. *Madurella mycetomatis* strains from mycetoma lesions in Sudanese patients are clonal. J Clin Microbiol **41:**4537-41.
2. Ahmed, A. A., **W. W. J. van de Sande,** A. Fahal, I. Bakker-Woudenberg, H. Verbrugh, and A. van Belkum. 2007. Management of mycetoma: major challenge in tropical mycoses with limited international recognition. Curr Opin Infect Dis **20:**146-51
3. Ahmed, A. O., **W. W. J. van de Sande,** W. van Vianen, A. van Belkum, A. H. Fahal, H. A. Verbrugh, and I. A. Bakker-Woudenberg**.** 2004. *In vitro* susceptibilities of *Madurella mycetomatis* to itraconazole and amphotericin B assessed by a modified NCCLS method and a viability-based 2,3-Bis(2-methoxy-4-nitro-5- sulfophenyl)-5-[(phenylamino)carbonyl]-2H-tetrazolium hydroxide (XTT) assay. Antimicrob Agents Chemother **48:**2742-6. **Impact factor: 4.4**
4. Ahmed, A. O., W. van Leeuwen, A. Fahal**, W. W. J. van de Sande,** H. Verbrugh, and A. van Belkum. 2004. Mycetoma caused by *Madurella mycetomatis*: a neglected infectious burden. Lancet Infect Dis **4:**566-74.
5. Ahmed, A. O., W. van Vianen, M. T. ten Kate**, W. W. J. van de Sande,** A. van Belkum, A. H. Fahal, H. A. Verbrugh, and I. A. Bakker-Woudenberg**.** 2003. A murine model of *Madurella mycetomatis* eumycetoma. FEMS Immunol Med Microbiol **37:**29-36.

6. Buijtels P.C., **W. W. J. van de Sande**, S. Parkinson, P. L. Petit, M. A. van der Sande, D. van Soolingen, H. A. Verbrugh, A. van Belkum. 2008. Polymorphism in CC-chemokine ligand 2 associated with tuberculosis in Zambia. Int J Tuberc Lung Dis **12:**1485-8.
7. Ugahary, L., **W. W. J. van de Sande,** J. C. van Meurs, and A. van Belkum. 2004. An unexpected experimental pitfall in the molecular diagnosis of bacterial endophthalmitis. J Clin Microbiol **42:**5403-5.
8. **van de Sande, W. W., J.** de Kat, J. Coppens, A. O. Ahmed, A. Fahal, H. Verbrugh, and A. van Belkum. 2007. Melanin biosynthesis in *Madurella mycetomatis* and its effect on susceptibility to itraconazole and ketoconazole. Microbes Infect **9:**1114-23.
9. **van de Sande, W. W. J.,** A. H. Fahal, T. V. Riley, H. Verbrugh, and A. van Belkum. 2007. *In vitro* susceptibility of *Madurella mycetomatis*, prime agent of Madura foot, to tea tree oil and artemisinin. J Antimicrob Chemother **59:**553-5.
10. **van de Sande, W. W.J,** A. H. Fahal, H. Verbrugh, and A. van Belkum**.** 2007. *Madurella mycetomatis* compounds cross-reactive with galactomannan are detectable in culture supernatant but not in serum. J Med Microbiol **56:**869-70.
11. **van de Sande, W. W. J.,** A. Fahal, H. Verbrugh, and A. van Belkum**.** 2007. Polymorphisms in genes involved in innate immunity predispose towards mycetoma susceptibility. J Immunol **179:**3065-74.
12. **van de Sande, W. W. J.,** R. Gorkink, G. Simons, A. Ott, A. O. Ahmed, H. Verbrugh, and A. van Belkum. 2005. Genotyping of *Madurella mycetomatis* by selective amplification of restriction fragments (amplified fragment length polymorphism) and subtype correlation with geographical origin and lesion size. J Clin Microbiol **43:**4349-56.
13. **van de Sande, W. W. J.,** D. J. Janse, V. Hira, H. Goedhart, R. van der Zee, A. O. Ahmed, A. Ott, H. Verbrugh, and A. van Belkum. 2006. Translationally controlled tumor protein from *Madurella mycetomatis*, a marker for tumorous mycetoma progression. J Immunol **177:**1997-2005.
14. **van de Sande, W. W. J.,** A. Luijendijk, A. O. Ahmed, I. A. Bakker-Woudenberg, and A. van Belkum. 2005. Testing of the *in vitro* susceptibilities of *Madurella mycetomatis* to six antifungal agents by using the Sensititre system in comparison with a viability-based 2,3-bis(2-methoxy-4-nitro-5-sulfophenyl)-5- [(phenylamino)carbonyl]-2H-tetrazolium hydroxide (XTT) assay and a modified NCCLS method. Antimicrob Agents Chemother **49:**1364-8.
15. **van de Sande, W. W. J.,** W. van Vianen, M. T. Ten Kate, J. Vissers, J. Laurijsens, M. Tavakol, B. Rijders, R. A. Mathot, and I. A. Bakker-Woudenberg**.** 2008. Caspofungin prolongs survival in transiently neutropenic rats with advanced stage of invasive pulmonary aspergillosis. Antimicrob Agents Chemother **52**:1345-50.

16. van de Sande, W. W. J., M. Tavakol, W. van Vianen, and I. A. Bakker-Woudenberg. 2009. The effects of antifungal agents to conidial and hyphal forms of Aspergillus fumigatus. Med Mycol. Accepted for publication
17. van de Sande, W. W. J., R.A. Mathot, M.T. Ten Kate MT, W. van Vianen. M. Tavakol, B.J. Rijnders, and I.A.J.M. Bakker-Woudenberg. 2009. Combination therapy of advanced invasive pulmonary aspergillosis in transiently neutropenic rats using human pharmacokinetic equivalent doses of voriconazole and anidulafungin. Antimicrob Agents Chemother Accepted for publication
18. van de Sande, W. W. J., A. Fahal, M. Tavakol, and A. van Belkum,. 2009. Polymorphisms in catechol-O-methyltransferase and cytochrome p450 subfamily 19 genes predispose towards Madurella mycetomatis-induced mycetoma susceptibility. J Infect Dis, Submitted

International presentations

2005 Poster presentation Trends in Medical Mycology, Berlin, Germany

2006 Oral presentation International Society for Human and Animal Mycology (ISHAM), Paris, France

2007 Oral presentation Pan-African Medical Mycology Society, Cape Town, South Africa

2008 Poster presentation Focus on Fungal Infections, San Antonio, USA

Poster presentation 48th Annual Interscience Conference on Antimicrobial Agents and Chemotherapy/46th Infectious Diseases Society of America (ICAAC-IDSA), Washington DC (2008)

2009 Oral presentation Mycetoma International Week, Khartoum, Sudan

Oral presentation International Society for Human and Animal Mycology (ISHAM), Tokyo, Japan

PhD students

Patricia Verwer. 2009-current. Innovative antifungal strategies against Invasive Pulmonary Aspergillosis caused by *Aspergillus fumigatus*

(International) awards

2002 Runner-up Zilveren Vlam - Nederlandse Vereniging van bioMedisch Laboratorium-medewerkers (NVML).

2007 Travel scholarship from the Pan-African Medical Mycology Society

Current research grant support

- Aparna Biosciences Corporation, Rockville, USA. Study: antifungal activity of branched HK polyamides. Research support € 24.895,-
- Premieregeling landelijke verniewingsimpuls, Erasmus Universiteit Rotterdam, The Netherlands. Research support € 7.000,-
- ErasmusMC fellowship, Erasmusm Universiteit Rotterdam, The Netherlands. Study: Innovative antifungal strategies against Invasive Pulmonary Aspergillosis caused by *Aspergillus fumigatus*. Reseach support: € 200.000,-

Current research topics

- Innovative antifungal strategies against Invasive Pulmonary Aspergillosis caused by *Aspergillus fumigatus*
- Pathogenesis of *Madurella mycetomatis*

(International) collaborations

- Professor Ahmed Fahal, Mycetoma Research Centre, Khartoum, Sudan
- Professor Sybren de Hoog. Centraal bureau voor Schimmelcultures, Utrecht, The Netherlands
- Dr. Martin Woodle, Aparna Biosciences, Rockville, MD, USA.

Other academic activities

- Teaching Second-year medical students Medical Microbiology and Infectious Diseases
- Convener of the Eumycetoma Working Group, an international working group established under the umbrella of the International Society for Human and Animal Mycology (ISHAM).
- Editorial board of Analyse, a magazine for medical technicians.