

Prof. Achim Hörauf, MD

Institute of Medical Microbiology, Immunology and Parasitology



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Research Expertise

Prof. Hörauf is internationally renowned for his work in Tropical Medicine, in particular for pioneering new drug treatments against filariasis (a group of neglected tropical diseases). The new treatment exploits an endosymbiosis between worms and bacterial endosymbionts called Wolbachia, which are susceptible to some classes of antibiotics. Prof. Hörauf's group was the first to characterize a TLR2 ligand from Wolbachia and established that blindness in onchocerciasis (or 'river blindness') is dependent on innate immune reactions against Wolbachia. They were the first to detect regulatory T cells in humans in an infection. Modulation of host's immune responses is another focus of Prof. Hörauf's group, demonstrating that filarial infection and filarial antigen treatment protects against type 1 diabetes onset and improves glucose tolerance during obesity. Using expression quantitative trait loci analysis, the role of genetic factors in modulating cellular responses (to filarial antigens) and eventually filariae-caused pathology development is currently investigated.

Education / Training

University of Erlangen, Germany, Clinical Immunology, MD, 1989

University of Erlangen, Germany, Duke University, USA and Galway University, Ireland

Clinical Immunology MD, with clinical rotations, 1989

Appointments / Positions Held

2003 - present

Full Professor and Director, Institute for Medical Microbiology, Immunology and Parasitology, University Hospital Bonn, Germany

2001 - 2003

Head, Department of Helminthology, Bernard Nocht Institute for Tropical Medicine, Germany

1995 - 2001

Independent Laboratory Head, Bernard Nocht Institute for Tropical Medicine, Germany

1990 - 1994

Fellow, Institute for Clinical Microbiology, Immunology and Hygiene, University of Erlangen, Germany

Honors / Awards

2022

Chair: Paul-Ehrlich Foundation of the Paul Ehrlich Society for Anti Infective Therapy

2020

Member of the WHO Diagnostic Technical Advisory Group (DTAG) for

Neglected Tropical Diseases

2018

Member at the Meeting of the Expert Panel on Filarial Infections: Global Programme to Eliminate Lymphatic Filariasis (GPELF)

2017

Chairman: German Network against Neglected Tropical Diseases (DNTDs)

2016

Member of the DFG Fachkollegium "Mikrobiologie, Virologie und Immunologie"

2015

The Innovation Award 2015 by BioRegionen

2015

Memento Prize for Neglected Diseases

10 Most Relevant Publications for Prof. Achim Hörauf

1. Adjobimey T, Meyer J, Sollberg L, Bawolt M, Berens C, Kovačević P, Trudić A, Parcina M, Hoerauf A. 2022 Comparison of IgA, IgG, and Neutralizing Antibody Responses Following Immunization With Moderna, BioNTech, AstraZeneca, Sputnik-V, Johnson and Johnson, and Sinopharm's COVID-19 Vaccines. *Front Immunol.* 2022;13: 917905.
2. Miethke M, Pieroni M, Weber T, Brönstrup M, Hammann P, Halby L, Arimondo PB, Glaser P, Aigle B, Bode HB, Moreira R, Li Y, Luzhetskyy A, Medema MH, Pernodet JL, Stadler M, Tormo JR, Genilloud O, Truman AW, Weissman KJ, Takano E, Sabatini S, Stegmann E, Brötz-Oesterhelt H, Wohlleben W, Seemann M, Empting M, Hirsch AKH, Loretz B, Lehr CM, Titz A, Herrmann J, Jaeger T, Alt S, Hesterkamp T, Winterhalter M, Schiefer A, Pfarr K, Hoerauf A, Graz H, Graz M, Lindvall M, Ramurthy S, Karlen A, van Dongen M, Petkovic H, Keller A, Peyrane F, Donadio S, Fraise L, Piddock LJV, Gilbert IH, Moser HE, Müller R. 2021 Towards the sustainable discovery and development of new antibiotics. *Nat Rev Chem.* 2021:1-24.
3. Ostendorf T, Zillinger T, Andryka K, Schlee-Guimaraes TM, Schmitz S, Marx S, Bayrak K, Linke R, Salger S, Wegner J, Grasser T, Bauersachs S, Soltész L, Hübner MP, Nastaly M, Coch C, Kettwig M, Roehl I, Henneke M, Hoerauf A, Barchet W, Gärtner J, Schlee M, Hartmann G, Bartok E. 2020 Immune Sensing of Synthetic, Bacterial, and Protozoan RNA by Toll-like Receptor 8 Requires Coordinated Processing by RNase T2 and RNase 2. *Immunity.* 2020; 52(4): 591-605.e6.
4. Specht S, Suma TK, Pedrique B, Hoerauf A. 2019 Elimination of lymphatic filariasis in South East Asia. *BMJ.* 2019; 364: k5198.
5. Gondorf F, Berbudi A, Buerfent BC, Ajendra J, Bloemker D, Specht S, Schmidt D, Neumann AL, Layland LE, Hoerauf A, Hübner MP. 2015 Chronic filarial infection provides protection against bacterial sepsis by functionally reprogramming macrophages. *PLoS Pathog.* 2015 Jan 22;11(1)
6. Taylor M, Hoerauf A, Bockarie M. 2010. Lymphatic filariasis and onchocerciasis. *Lancet* 376: 1175-85.
7. Hoerauf A. 2009. *Mansonella perstans*-the importance of an endosymbiont. *N Engl J Med* 361: 1502-4.
8. Specht S, Hoerauf A. 2007. Does helminth elimination promote or prevent malaria? *Lancet* 369: 446-7.
9. Taylor MJ, Makunde WH, McGarry HF, Turner JD, Mand S, Hoerauf A. 2005. Macrofilaricidal activity after doxycycline treatment of *Wuchereria bancrofti*: a double-blind, randomised placebo-controlled trial. *Lancet* 365: 2116-21.
10. Saint Andre A, Blackwell NM, Hall LR, Hoerauf A, Brattig NW, Volkmann L, Taylor MJ, Ford L, Hise AG, Lass JH, Diaconu E, Pearlman E. 2002. The role of endosymbiotic Wolbachia bacteria in the pathogenesis of river blindness. *Science* 295: 1892-5.