

Prof. Dr. Marc P. Hübner

Institute for Medical Microbiology, Immunology and Parasitology



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Research Expertise

My lab focuses on different aspects of helminth (worm) infections: 1) Protective immune responses against filariae and especially the protective role of eosinophils and the contribution of extracellular DNA traps (ETosis), 2) Filarial immunomodulation and its beneficial impact on life-style diseases such as diet-induced insulin resistance, 3) Preclinical testing of drug candidates for filariasis in order to identify novel macrofilaricidal drugs in collaboration with partners from industry and not-for-profit-organizations. For these investigations we use the *Litomosoides sigmodontis* rodent model and perform human studies with filariasis patients in sub-Saharan Africa.

Education / Training

I studied Biology in Hohenheim and Tübingen, Germany, and worked during my PhD on the immunomodulation of the rodent filarial nematode *Litomosoides sigmodontis*. After receiving my PhD in 2006, I joined the Uniformed Services University in Bethesda, MD, USA. In 2010, I moved to the University Hospital Bonn as group leader in Prof. Hoerauf's institute (IMMIP). In 2018, I obtained my habilitation in "Medical Parasitology and Immunology of Infections".

Appointments /

Since 2020, I am W2 DZIF professor for translational microbiology and the head of diagnostics in parasitology at the IMMIP, University Hospital Bonn.

Positions Held

Among my professional functions are the work as INSTAND QA scheme consultant, steering committee member of the German Society for Parasitology (DGP), member of the expert group "Detection and characterization of infectious agents" according to the Guideline of the German Medical Association for Quality Assurance of Laboratory Medical Examinations (Rili-BÄK) and Deputy head of the section antiparasitic therapy of the Paul Ehrlich Gesellschaft für Infektionstherapie (PEG).

10 Most Relevant Publications for Prof. Marc Hübner

1. Reichwald, J.J., Risch, F., Neumann, A.L., Frohberger, S.J., Scheunemann, J.F., Lenz, B., Ehrens, A., Strutz, W., Schumak, B., Hoerauf, A., Hübner, M.P., 2022. ILC2s Control Microfilaremia During *Litomosoides sigmodontis* Infection in Rag2(-/-) Mice. *Front Immunol* 13, 863663.
2. Scheunemann, J.F., J.J. Reichwald, P.J. Korir, J.M. Kuehlwein, L.M. Jenster, C. Hammerschmidt-Kamper, M.D. Lewis, K. Klocke, M. Borsche, K.E. Schwendt, C. Soun, S. Thiebes, A. Limmer, D.R. Engel, A.K. Mueller, A. Hoerauf, M.P. Hübner*, and B. Schumak*. 2021. Eosinophils Suppress the Migration of T Cells Into the Brain of *Plasmodium berghei*-Infected *Ifnar1(-/-)* Mice and Protect Them From Experimental Cerebral Malaria. *Front Immunol* 12, 711876. *shared authorship
3. Ehrens, A., N. Rüdiger, L. Heepmann, L. Linnemann, W. Hartmann, M.P. Hübner, and M. Breloer. 2021. Eosinophils and Neutrophils Eliminate Migrating *Strongyloides ratti* Larvae at the Site of Infection in the Context of Extracellular DNA Trap Formation. *Front Immunol* 12, 715766.
4. Ehrens, A., B. Lenz, A.L. Neumann, S. Giarrizzo, J.J. Reichwald, S.J. Frohberger, W. Stamminger, B.C. Buerfert, F. Fercoq, C. Martin, D. Kulke, A. Hoerauf, and M.P. Hübner. 2021. Microfilariae Trigger Eosinophil Extracellular DNA Traps in a Dectin-1-Dependent Manner. *Cell reports* 34:108621.
5. Krücken, J., L. Holden-Dye, J. Keiser, R.K. Prichard, S. Townson, B.L. Makepeace, M.P. Hübner, S.R. Hahnel, I. Scandale, A. Harder, and D. Kulke. 2021. Development of emodepside as a possible adjuvant treatment for human onchocerciasis-The fruit of a successful industrial-academic collaboration. *PLoS Pathog* 17:e1009682.
6. Hübner, M.P.*, C. Martin*, S. Specht, M. Koschel, B. Dubben, S.J. Frohberger, A. Ehrens, M. Fendler, D. Struever, E. Mitre, N. Vallarino-Lhermitte, S. Gokool, S. Lustigman, M. Schneider, S. Townson, A. Hoerauf, and I. Scandale. 2020. Oxfendazole mediates macrofilaricidal efficacy against the filarial nematode *Litomosoides sigmodontis* in vivo and inhibits *Onchocerca spec.* motility in vitro. *PLoS Negl Trop Dis* 14:e0008427. *shared authorship
7. Surendar, J., S.J. Frohberger, I. Karunakaran, V. Schmitt, W. Stamminger, A.L. Neumann, C. Wilhelm, A. Hoerauf, and M.P. Hübner. 2019. Adiponectin Limits IFN-gamma and IL-17 Producing CD4 T Cells in Obesity by Restraining Cell Intrinsic Glycolysis. *Front Immunol* 10:2555.
8. Hübner, M.P., M. Koschel, D. Struever, V. Nikolov, S.J. Frohberger, A. Ehrens, M. Fendler, I. Johannes, T.W. von Geldern, K. Marsh, J.D. Turner, M.J. Taylor, S.A. Ward, K. Pfarr, D.J. Kempf, and A. Hoerauf. 2019. In vivo kinetics of *Wolbachia* depletion by ABBV-4083 in *L. sigmodontis* adult worms and microfilariae. *PLoS Negl Trop Dis* 13:e0007636.
9. Bakowski, M.A., R.K. Shiroodi, R. Liu, J. Olejniczak, B. Yang, K. Gagaring, H. Guo, P.M. White, L. Chappell, A. Debec, F. Landmann, B. Dubben, F. Lenz, D. Struever, A. Ehrens, S.J. Frohberger, H. Sjöberg, N. Pionnier, E. Murphy, J. Archer, A. Steven, V.C. Chunda, F.F. Fombad, P.W. Chounna, A.J. Njouendou, H.M. Metuge, B.L. Ndzheshang, N.V. Gandjui, D.N. Akumtuh, T.D. Kwenti, A.K. Woods, S.B. Joseph, M.V. Hull, W. Xiong, K.L. Kuhnen, M. Taylor, S. Wanji, J.D. Turner, M.P. Hübner, A. Hoerauf, J. Roland, M.S. Tremblay, P.G. Schultz, W. Sullivan, X.-J. Chu, H.M. Petrassi, and C.W. McNamara. 2019. Discovery of short-course anti-wolbachial quinazolines for elimination of filarial worm infections. *Sci Transl Med* 11:491.
10. Taylor, M.J., T.W. von Geldern, L. Ford, M.P. Hübner, K. Marsh, K.L. Johnston, H.T. Sjöberg, S. Specht, N. Pionnier, H.E. Tyrer, R.H. Clare, D.A.N. Cook, E. Murphy, A. Steven, J. Archer, D. Bloemker, F. Lenz, M. Koschel, A. Ehrens, H.M. Metuge, V.C. Chunda, P.W. Ndongmo Chounna, A.J. Njouendou, F.F. Fombad, R. Carr, H.E. Morton, G. Aljayyousi, A. Hoerauf, S. Wanji, D.J. Kempf, J.D. Turner, and S.A. Ward. 2019. Preclinical development of an oral anti-*Wolbachia* macrolide drug for the treatment of lymphatic filariasis and onchocerciasis. *Sci Transl Med* 11:483.