

Curriculum vitae



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Ausbildung

- 1989-1996 Studium der Medizin an der Karl Eberhard-Universität in Tübingen und der Medizinischen Universität zu Lübeck mit Auslandsaufenthalten am Hôpital Necker Enfants Malades (Paris, Frankreich), dem Mount Sinai Hospital (New, York, USA) und dem Centre Hôpitalier Universitaire Vaudois (CHUV, Lausanne, Schweiz).
- 1993-1996 Promotion am Institut für Immunologie und Transfusionsmedizin, Medizinische Universität zu Lübeck (Direktor: Prof. H. Kirchner)
- 1996-2000 Assistenzarzt und Wissenschaftlicher Mitarbeiter am Max von Pettenkofer Institut für Hygiene und Medizinische Mikrobiologie der Ludwig Maximilian Universität in München
- 2000-2003 Postdoktorand im Labor von Prof. Staffan Normark, Microbiology and Tumor Biology Center (MTC), Karolinska Institut, Stockholm, Schweden.
- 2003 Assistent Professor, Swedish Center for Infection Research (SMI), Karolinska Institut, Stockholm, Schweden.
- 2003-2007 Assistenzarzt und Arbeitsgruppenleiter am Institut für Medizinische Mikrobiologie und Hygiene, Universität Freiburg.
- 2007-2014 Professor für Molekulare Mikrobiologie (W2) am Institut für Medizinische Mikrobiologie und Krankenhaushygiene der Medizinischen Hochschule Hannover
- seit 2014 Professor und Direktor (W3) des Instituts für Medizinische Mikrobiologie am Universitätsklinikum der RWTH, Aachen.

Preise und Auszeichnungen

- 1999 Auslandsstipendium der Deutschen Forschungsgemeinschaft
- 2002 Postdoktorandenstipendium des Karolinska Institutes, Stockholm, Schweden
- 2003 Assistant Professorship des schwedischen Wissenschaftsrates (Vetenskapradet)
- 2004 Postdoktoranden Preis für Mikrobiologie der Robert-Koch Gesellschaft
- 2006 Adolf Kussmaul-Preis der Südwestdeutschen Gesellschaft für Gastroenterologie
- 2007 Editorial Board, Microbes and Infection
- 2008 Robert-Koch Förderpreis der Stadt Clausthal-Zellerfeld
- 2008 Editorial Board, Journal of Innate Immunity
- 2009 Kavli Stipendiat, Natl. Acad. of Sciences USA & Alexander-von-Humboldt Stiftung
- 2013 Editorial Board, Mucosal Immunology

Publikationen (Auswahl)

Originalarbeiten

1. **Hornef, M.W.**, Frisan, F., Vandewalle, A., Normark, S., and Richter-Dahlfors, A.: Toll-like receptor 4 resides in the Golgi apparatus and colocalizes with internalized lipopolysaccharide in intestinal epithelial cells. *J Exp Med.* 195: 559-570, 2002.
2. **Hornef MW**, Normark BH, Vandewalle A, Normark S. Intracellular recognition of lipopolysaccharide by toll-like receptor 4 in intestinal epithelial cells. *J Exp Med.* 198: 1225-35, 2003.
3. **Hornef MW**, Pütsep K, Karlsson J, Refai E, Andersson, M. Increased variability of intestinal antimicrobial peptides by covalent dimer formation. *Nat Immunol.* 5: 836-43, 2004. Highlighted in *Nat Immunol.* 2004; 5: 775-6.
4. MyD88-dependent signaling controls bacterial growth in colonization and systemic pneumococcal disease in mice. Albiger B, Sandgren A, Katsuragi H, Meyer-Hoffert U, Beiter K, Warthai F, **Hornef MW**, Normark S, Henriques-Normark B. *Cell Microbiol.* 7(11): 1603-15. 2005.
5. Lotz, M., Gütle, D., Ménard, S., Walther, S., Bogdan, C., **Hornef, M.W.**. Postnatal acquisition of endotoxin tolerance in intestinal epithelial cells. *J Exp Med.* 203(4):973-984, 2006. Highlighted in *Nature* 441: 4, 2006 and *Nat Rev Microbiol.* 4: 420, 2006
6. Lotz M, König T, Menard S, Gutle D, Bogdan C, **Hornef MW**. Cytokine-mediated control of lipopolysaccharide-induced activation of small intestinal epithelial cells. *Immunology.* 122:306-15, 2007.
7. Lichtinger M, Ingram R, **Hornef MW**, Bonifer C, Rehli M. Transcription factor PU.1 controls transcription start site positioning and alternative TLR4 promoter usage. *J Biol Chem.* 282:26874-83, 2007.
8. Chassin C, **Hornef MW**, Bens M, Lotz M, Goujon J-M, Vimont S, Arlet G, Hertig A, Rondeau E, Vandewalle A. Hormonal control of the renal immune response and antibacterial host defense by arginine vasopressin, *J Exp Med.* 204:2837-52, 2007.
9. Ménard S, Förster V, Lotz M, Gütle D, Duerr C U, Gallo RL, Henriques-Normark B, Pütsep K, Andersson M, Glocker E O, **Hornef MW**. Developmental switch of intestinal antimicrobial peptide expression. *J. Exp Med.* 205:183-93, 2008. Highlighted in *Science* 319: 259, 2008.
10. Meyer-Hoffert U*, **Hornef MW***, Henriques-Normark B, Axelsson L-G, Midtvedt T, Pütsep K and M Andersson. Enteric antimicrobial activity localizes to the mucus surface layer. *Gut* 57:764-771, 2008.
11. Meyer-Hoffert U, **Hornef MW**, Henriques-Normark B, Normark S, Andersson M, Pütsep K. Identification of heparin/heparan sulfate interacting protein as a major broad-spectrum antimicrobial protein in lung and small intestine. *FASEB J.* 22:2427-2434, 2008. Highlighted in *Gut* 57(6), 2008.
12. Chassin C, Vimont S, Cluzeaud F, Bens M, Goujon J-M, Fernandez B, Hertig A, Rondeau E, Arlet G, **Hornef MW** and Vandewalle A. TLR4-mediated Cellular Activation Facilitates Transcellular Translocation of Uropathogenic *E. coli* Across Renal Collecting Duct Cells through a Lipid Raft-Mediated Process *J Am Soc Nephrol* 19(12):2364-74, 2008.
13. Edele F, Molenaar R, Gütle D, Reinhold C, Dudda JC, Homey B, Mebius R, **Hornef MW**, Martin SF. Cutting edge: Instructive role of peripheral tissue cells in the imprinting of T cell homing receptor patterns. *J Immunol.* 181(6):3745-9, 2008.
14. Duerr, C.U., Zenk, S.F., Chassin, C., Pott, J., Gütle, D., Hensel, M., **Hornef M.W.** O-antigen delays lipopolysaccharide recognition and impairs antibacterial host defence in intestinal epithelial cells. *PLoS Pathog* 2009 5(9):e1000567.
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16. Decker, E., Engelmann, G., Findeisen, A., Gerner, P., Laaß, M., Ney, D., Posovszky, C., Hoy, L., **Hornef, M.W.** Caesarean delivery is associated with coeliac disease but not inflammatory bowel disease in children. *Pediatrics* 125: 1433-40, 2010. Highlighted in *Nat. Rev Gastro*, 7: 418, 2010.
17. Gutschmann, T., Razquin-Olazarán, I., Kowalski, I., Kaconis, Y., Howe, J., Bartels, R., **Hornef, M.W.**, Schürholz, T., Rössle, M., Sanchez-Gómez, S., Moriyon, I., Martínez de Tejada, G., Brandenburg, K. New

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 21. Pott, J., Mahlaköiv, T., Mordstein, M., Duerr, C.U., Michiels, T., Stockinger, S.*, Staeheli, P.*, **Hornef, M.W.*.** IFN- λ determines the intestinal epithelial antiviral host defense. *Proc Natl Acad Sci U S A.* 108: 7944-9, 2011.
 22. Pott J, Stockinger S, Torow N, Smoczek A, Lindner C, McInerney G, Bäckhed F, Baumann U, Pabst O, Bleich A, **Hornef MW.** Age-dependent TLR3 expression of the intestinal epithelium contributes to rotavirus susceptibility. *PLoS Pathogens*, 8(5):e1002670. 2012
 23. Chassin C, Hempel C, Stockinger S, Dupont A, Kübler JF, Wedemeyer J, Vandewalle A, **Hornef MW.** MicroRNA-146a-mediated downregulation of IRAK1 protects mouse and human small intestine against ischemia/reperfusion injury. *EMBO Mol Med.* 4(12):1308-19, 2012.
 24. Schuerholz T, Doemming S, **Hornef MW,** Martin L, Simon TP, Heinbockel L, Brandenburg K and Marx G. The anti-inflammatory effect of the synthetic antimicrobial peptide 19-2.5 in a murine sepsis model: a prospective randomized study. *Critical Care* 17(1): R3, 2013.
 25. Heinbockel L, Sanchez-Gomez S, Martinez de Tejada G, Dömming S, Brandenburg J, Kaconis Y, **Hornef MW,** Dupont A, Marwitz S, Goldmann T, Ernst M, Gutschmann T, Schürholz T, and Brandenburg K. Preclinical investigations reveal the broad spectrum neutralizing activity of peptide Pep19-2.5 on bacterial pathogenicity factors. *Antimicrob Agents Chemother.* 57(3): 1480-1487, 2013.
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34. Stockinger S, Duerr CU, Fulde M, Dolowschiak T, Pott J, Yang I, Eibach D, Bäckhed F, Akira S, Suerbaum S, Brugman M, **Hornef MW**. TRIF Signaling Drives Homeostatic Intestinal Epithelial Antimicrobial Peptide Expression. *J Immunol*. 2014 Sep 10. pii: 1302708.
35. Zhang K, Dupont A, Torow N, Gohde F, Leschner S, Lienenklaus S, Weiss S, Brinkmann MM, Kühnel M, Hensel M, Fulde M, **Hornef MW**. Age-dependent enterocyte invasion and microcolony formation by salmonella. *PLoS Pathog*. 2014 Sep 11;10(9):e1004385.

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Reviews/Kommentare/Buchkapitel

1. Normark, S., Henriques-Normark, B., and **Hornef, M.W.**: How neutrophils recognize bacteria and move toward infection. *Nat Med*. 7: 1182-1184, 2001.
2. **Hornef MW**, Wick MJ, Rhen M, Normark S. Bacterial strategies for overcoming host innate and adaptive immune responses. *Nat Immunol*. 3: 1033-1040, 2002.
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4. Normark S, Nilsson C, Henriques-Normark B, **Hornef MW**. Persistent infection with *Helicobacter pylori* and the development of gastric cancer. *Adv Cancer Res* 90: 63-89, 2003.
5. **Hornef, MW**, Normark, S, Henriques-Normark, B, Rhen, M. Bacterial evasion of innate defense at epithelial linings. In.: *Reciprocal Interactions of host cells and microbes*. Kabelitz D, Schröder JM (eds): *Mechanisms of Epithelial Defense*. Chem Immunol Allergy. Basel, Karger, 2005, vol 86, pp 72–98
6. **Hornef MW**, Bogdan, C. The role of epithelial toll-like receptor expression in host defense and microbial tolerance. *J Endotox Res*. 11:124-8, 2005.
7. Lotz M, Ménard S, **Hornef MW**. Innate immune recognition on the intestinal mucosa. *Int. J. Med. Microbiol*. 297:379-392, 2007.
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9. Rhen, M., Normark, S. and **Hornef, M.W.** Microbial strategies to evade and subvert host immune defenses. *Encyclopedia of Microbiology*, Eds.: J. Lederberg, M. Schaechter, 3rd Edition, Elsevier, 2009.
10. Decker, E., **Hornef, M.W.** and Stockinger, S. Cesarean delivery is associated with celiac disease but not inflammatory bowel disease in children. *Gut Microbes* 2(2):91-8, 2011.
12. **Hornef, M.W.**, Josenhans, C. A NOD towards understanding Crohn's pathology. *Nat. Med*. 17: 785–787, 2011.
13. Chassin C, **Hornef MW**. Between vigilance and tolerance: the immune function of the intestinal epithelium. *Cell Mol Life Sci*. 68: 3619-21, 2011.
14. Stockinger S, **Hornef MW.**, Chassin C. Establishment of intestinal homeostasis during the neonatal period. *Cell Mol Life Sci*. 68: 3699-712, 2011.
15. Renz, H, Brandtzaeg, P, **Hornef, MW**. The impact of perinatal immune development on mucosal homeostasis and chronic inflammation. *Nat Rev Immunol*. 12:9-23, 2011.
16. Duerr CU, **Hornef, MW**. The mammalian intestinal epithelium as integralplayer in the establishment and maintenance of host microbial homeostasis. *Sem Immunol*. 24: 25-35, 2012.
19. Pott, J., **Hornef, M.W.** Innate immune signalling at the intestinal epithelium in homeostasis and disease. *EMBO Rep*, 13(8):684-98, 2012.
21. Fulde, M., **Hornef, M.W.** Handle energy sources with care. *Trends in Microbiol.*, 22(1):5-6, 2014.
22. Fulde M, **Hornef MW**. Maturation of the enteric mucosal innate immune system during the postnatal period. *Immunol Rev*. 2014 Jul;260(1):21-34. doi: 10.1111/imr.12190.
23. Atreya R, Bülte M, Gerlach GF, Goethe R, **Hornef MW**, Köhler H, Meens J, Möbius P, Roeb E, Weiss S; on behalf of the ZooMAP Consortium. Facts, myths and hypotheses on the zoonotic nature of *Mycobacterium avium* subspecies paratuberculosis. *Int J Med Microbiol*. 2014 Jul 25. pii: S1438-4221(14)00088-5. doi: 10.1016/j.ijmm.2014.07.006.