

## Prof. Dr. Ulrich Johannes Steinhoff

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(Foto: <https://www.uni-marburg.de/fb20/medmikrobio/personal/leitung.html>)



### Personal Statement

My scientific training in the Max-Planck-Institutes and in the lab of the Nobel-laureate Zinkernagel was in infection and inflammation. In 1999, I dropped into mucosal immunology by showing that Mycobacteria-crossreactive T cells induce tissue-specific pathology in the small intestine (**Immunity, 1999**). This finding sparked my interest to study mechanisms of inflammatory responses within the small and large bowel. Our discovery that intestinal tissues differ in their proteasome subunit composition was a breakthrough for the understanding of immunological and inflammatory reactions within the small intestine and the colon (**J Exp. Med. 2002**). This finding was confirmed for the human gut (**Inflamm. Bowel Dis., 2009**) and studies with IBD patients further revealed that expression of immunoproteasomes is massively enhanced in inflamed tissues sites (**JCI 2006**). Molecular studies identified the immunoproteasome  $\beta 5i$  subunit as crucial catalytic center that controls immunoproteasome assembly as well as inflammatory signaling in IBD patients. Further, modulation of  $\beta 5i$  leads to massively reduced inflammatory reaction in experimental IBD (**Gut 2010; Mucosal Immunology 2012**). Consequently, we will now test  $\beta 5i$ -specific “new generation” proteasome inhibitors for their therapeutic potential and safety in chronic colitis and inflammation induced colon cancer. In 2010 I got a tenure track professorship at the university of Marburg for installing a clinical/basic science research group for mucosal immunology.

### Positions and Employment

1995-1999	Scientist at the Max-Planck-Institute for Infection Biology, Berlin, FRG
1999-2002	Group leader for mucosal immunology, Max-Planck-Institute for Infection Biology, Berlin, FRG
2003-2010	Associate director, Max-Planck-Institute for Infection Biology, Dept. of Immunology, Berlin
2010-present	Full professor, University of Marburg, Dept. of Medical Microbiology and Hygiene, Marburg

### Other Experience and Professional Memberships

1992	Member of the German society of Immunology (DGFI),
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- 1995 Member of the German society of Hygiene and Microbiology (DGHM)
- 1996 Member of the WHO advisory board (TDR)
- 2001 Member of the Society for Mucosal Immunology (SMI)
- 2001 Ad hoc grant reviewer for the Boehringer Ingelheim Fond (Germany), grant agency of the academy of sciences of the Czech Republic and Deutsche Forschungsgemeinschaft (DFG)
- 2002 Venia Legendi in Immunology (Habilitation) at the Humboldt University, Berlin
- 2004 Consultant Immunologist DGFI (German Society of Immunology)
- 2004-08 Coordinator of EU 6th Frame Work „Muvapred“ (Mucosal vaccines against poverty related diseases)
- 2005 Opponent and lecturer at the University of Gothenburg
- 2006 Peer Review for the following journals: JEM, EJI, I&I, Int. Immunol, Gut, Mucosal Immunology
- 2010 Associate Editor for European Journal of Immunology and Microbiology

### Honors

- 1984-85 Fulbright fellowship for graduate studies at the University of Massachusetts at Amherst, MA
- 1988 Boehringer Ingelheim stipend
- 1991 Research stipend for infectious disease, German Ministry for Education and Science
- 1992-94 EMBO scholarship
- 2002 Scientific paper of the year 2002 for contribution to the understanding of organ-specific autoimmunity, Paul Ehrlich Club of the University of Ireland
- 2006-09 Three manuscript were evaluated as scientifically outstanding by the faculty 1000
- 2010 Excellence in Teaching, medical faculty of Marburg Publications

### Selected Publications

Müller U, **Steinhoff U**, Reis L, Hemmi S L, Pavlowitch J, Zinkernagel R (1993). Functional inactivation of the murine type I IFN-receptor abrogates antiviral defense. **Science** 264: 1918-1921

**Steinhoff U**, Brinkmann V, Klemm U, Aichele P, Seiler P, Prinz I, Zügel U and Kaufmann SHE (1999). Autoimmune intestinal pathology induced by hsp60-specific CD8 T cells. **Immunity** 11: 349-358

Kuckelkorn U, Ruppert T, Jungblut P, Zimny-Arndt U, Lamers S, Prinz I, Drung I, Kloetzel PM, Kaufmann SHE and **Steinhoff U** (2002). A link between autoimmunity and organ-specific antigen processing by 20S proteasomes. *J. Exp. Med.* 195:983-990

Visekruna A, Joeris T, Zeitz M, Kaufmann SHE, Loddenkemper C, Kroesen A, Slavova N and **Steinhoff U** (2006). Proteasome-mediated degradation of I $\kappa$ B $\alpha$  and processing of p105 in Crohn disease and ulcerative colitis. *J. Clin. Invest.*, 116: 3195-3203 (faculty 1000 paper) Di Marco Barros R, Roberts NA, Dart RJ, Vantourout P, Jandke A, Nussbaumer O, Deban L, Cipolat S, Hart R, Iannitto ML, Laing A, Spencer-Dene B, East P, Gibbons D, Irving PM, Pereira P, **Steinhoff U**, Hayday A. (2016). Epithelia Use Butyrophilin-like Molecules to Shape Organ-Specific  $\gamma\delta$  T Cell Compartments. *Cell* 22:203-218.