Curriculum Vitae

Personal Data

Title	Prof. Dr. med.
First name	Bodo
Name	Grimbacher
Current position	W3 professorship for Experimental Immunodeficiency, Vice Director of the Institute for Immunodeficiency
Current institution(s)/site(s), country	Medical Center – University of **Freiburg, Germany** Albert-Ludwigs-University
Identifiers/ORCID	0000-0002-6897-6806

Qualifications and Career

Stages	**Periods and Details**	
Degree programme	1988 – 1995	Human medicine in **Aachen**, **Freiburg**, **Hamburg, Germany**
Doctorate/Habilitation	2006	Inborn errors of B cell biology. Mentor: Hans-Hartmut Peter, Medical Center – University of **Freiburg, Germany**
	1995	Transcription factors in rheumatoid arthritis. Mentor: Hermann Eibel, Medical Center – University of **Freiburg, Germany**
Stages of academic/ professional career	Since 2019	Vice Director of the Institute for Immunodeficiency at the Center for Chronic Immunodeficiency (CCI), Medical Center – University of **Freiburg, Germany**
	2021 – 2022	Sabbatical at UCSD Laboratory of Prof. Kees Murre, **La Jolla, USA** Topic: Epigenetics of B cells
	2011 – 2019	Scientific Director and consultant at the CCI, Medical Center – University of **Freiburg, Germany**
	2006 – 2011	Consultant and EU Marie-Curie Research Group Leader, Department of Immunology, Royal Free Hospital, University College **London, UK**
	2000 – 2006	Emmy Noether-Fellow of the DFG, Division of Rheumatology and Clinical Immunology, Medical Center – University of **Freiburg, Germany**
	1997 – 2000	Post-doctorate, National Human Genome Institute (NIH), **Bethesda, MD, USA**
	1995 – 1997	Clinical Internship (AiP), Division of Rheumatology and Clinical Immunology, Medical Center – University of **Freiburg, Germany**

Activities in the Research System

Since 2022 Speaker of the Working Group Molecular Testing of the European Reference Network ERN-RITA

Since 2022 Board Member and Head of the Genetics Working Party of the European Society for Immunodeficiency (ESID)

Since 2021 Member of the Scientific Advisory Board of the DADA2 Foundation

Since 2019 Member of the Scientific Advisory Board of the ACHSE e.V.

Since 2019 Speaker of the German Rare Disease Network GAIN (BMBF)

Since 2022	Speaker of the Translational Immunology School TIS (DGfI)
2019 – 2023	Co-Speaker of the E-Rare Disease Network iPAD (EU)
2014 – 2023	Speaker of the Arbeitskreis Klinische Immunologie AKKI (DGfI)
2006 – 2010	Secretary of the European Society for Immunodeficiencies (ESID)
2002 – 2006	Head of the ESID registry, set up of an internet-based patient and research database for over 200 different primary immunodeficiencies which was supported and sponsored by the European Commission under the 6th Framework Program

Supervision of Researchers in Early Career Phases

Under Grimbacher's guidance as the primary mentor, 33 MD students, 7 PhD students, 17 Master students, and 11 Bachelor students have successfully submitted their thesis by January 2024. He is currently mentoring himself 11 MD students and 3 PhD students.

Grimbacher organizes the annual Translational Immunology School (TIS) of the German Society for Immunology (DGfI), three days of intense teaching, covering a broad variety of state-of-the-art and ground-breaking topics. Every year 50 students from European academic and clinical centers attend this international course which is key for networking and hence career development for many stellar scientists especially from Germany.

His alumni include: (i) former postdoc Prof. Michele Proietti, now W1 professor at the MHH; (ii) former postdoc Dr. Ulrich Salzer, now Head of the Immunology Diagnostic Laboratory of the Department of Rheumatology and Clinical Immunology in Freiburg; (iii) former MD student Dr. Johannes Jung, now Junior Group Leader at the Department of Hematology, Oncology, and Stem-Cell Transplantation in Freiburg; and (iv) former PhD student Dr. Laura Gamez-Diaz, now Junior Group Leader at the CCI in Freiburg. Moreover, several alumni have secured themselves attractive leading positions in industry, e.g. Dr. Desirée Schubert, PhD (Roche) and Dr. Claudia Bossen, PhD (Roche).

Scientific Results

Grimbacher's group is working in the broad field of inborn errors of the immune system, applying a multitude of diverse research disciplines. These range from basic molecular and cellular biology, genetics and biochemistry, to epigenetics, the microbiome, gene therapy and bioinformatics to translational science, patient care and novel treatment options. He is convinced that comprehensive and competitive studies can only be accomplished with a multidisciplinary approach, aiming at deciphering the pathogenic mechanisms originating from a genetic defect while persistently striving for improvements of the treatment options for affected patients.

Grimbacher was critically involved in the identification of more than 18 monogenetic causes for primary immunodeficiencies; amongst them the first three monogenic causes of common variable immunodeficiency (the most prevalent human primary immunodeficiency); three causes of severe congenital neutropenia including Kostmann syndrome; six monogenic causes of hyper IgE syndromes and chronic mucocutaneous candidiasis, and the first monogenetic causes for inflammatory bowel disease (IL10/IL10-receptor deficiency).

Research of his current 16-members team centers around the NF-κB signaling network, T cell co-stimulation (focusing on CTLA-4 and LRBA), autophagy in the immune system and the role of LRBA in this process, JAK-STAT signaling and IgE regulation, the role of IL10 in inflammatory bowel disease, and the host defense against candida.

Since the commencement of the excellence clusters CIBSS – Centre for Integrative Biological Signalling – in Freiburg (as an AI), and RESIST – Resolving Infection Susceptibility – in Hanover (as a PI) in 2019, Grimbacher has published more than 50 papers, thereby contributing significantly to the visibility and reputation of both DFG excellence clusters.

He currently has seven publications in the prestigious *New England Journal of Medicine*.

Total number of peer reviewed original publications: 251, Total Impact Factor 01/2024: > 2,614

Total number of reviews: 49, Total Impact Factor 01/2024: > 284

H-Index: 78 (web of science 01/2024)

Citations: Total citations without self-citations (web of science) 01/2024: 22,227

Category A

1. Rauer S, …, **Grimbacher B**. Treatment of Progressive Multifocal Leukoencephalopathy with Pembrolizumab.
   N Engl J Med. 2019;380(17):1676-7. doi: 10.1056/NEJMc1817193.

   I was the first in Europe to treat PML with pembrolizumab (which blocks the PD1-receptor). 62 citations.

2. Frey-Jakobs S, …, **Grimbacher B**. ZNF341 controls STAT3 expression and thereby immunocompetence.
   Sci Immunol. 2018;3(24) doi: 10.1126/sciimmunol.aat4941.

   This study, entirely conceptualized and organized by myself, provided compelling evidence that ZNF341 has more impact on STAT3 compared to STAT1. Prof. J-L Casanova (Paris and NewYork) shared this opinion, although his initial data suggested the alternative. Both studies were published back-to-back. 90 citations.

3. Fliegauf M, …, **Grimbacher B**. Haploinsufficiency of the NF-kappaB1 Subunit p50 in Common Variable Immunodeficiency. ***Am J Hum Genet***. 2015;97(3):389-403. doi: 10.1016/j.ajhg.2015.07.008.

   Dr. Fliegauf and I first described NFKB1-insufficiency resulting from internal deletions and early truncating variants, what turned out to be the most frequent mongenetic cause for inborn errors of antibody deficiency. Shortly thereafter, we published the incidence of less common mutation classes (precursor-skipping and late truncations) and developed the ‘multiple mutation types’ concept. 173 citations.

4. Schubert D, …, **Grimbacher B**. Autosomal dominant immune dysregulation syndrome in humans with CTLA4 mutations. ***Nat Med***. 2014;20(12):1410-6. doi: 10.1038/nm.3746.

   Against the opinion of many colleagues, we demonstrated that heterozygous mutations in CTLA4 may – unlike in mice – produce a severe clinical phenotype. CTLA4 insufficiency turned out to be the second most prevalent inborn error of antibody deficiency. There is a parallel paper from Dr. Uzel, NIH, on the same discovery in Science. 587 citations.

5. Glocker EO, …, **Grimbacher B**, Klein C. Inflammatory bowel disease and mutations affecting the interleukin-10 receptor. ***N Engl J Med***. 2009;361(21):2033-45. doi: 10.1056/NEJMoa0907206.

   In collaboration with Prof. Klein, this pioneering study opened a entirely new field in gastroenterology: ‘monogenetic defects in very-early-onset inflammatory bowel disease’. Prof. Uhlig (Oxford) and Prof. Boztug (Vienna), build their career on this discovery. 1,024 citations.

6. Glocker EO, …, **Grimbacher B**. A homozygous CARD9 mutation in a family with susceptibility to fungal infections. ***N Engl J Med***. 2009;361(18):1727-35. doi: 10.1056/NEJMoa0810719.

   Identification of the first monogenetic defect leading to susceptibility to fungal disease. 606 citations.

7. Holland SM, …, **Grimbacher B**. STAT3 mutations in the hyper-IgE syndrome. ***N Engl J Med***. 2007;357(16):1608-19. doi: 10.1056/NEJMoa073687.

   This work concluded a 10 year-long quest which I started during my postdoctoral time in Jennifer Puck’s laboratory at the NIH for the cause of the very enigmatic disease ‘Job syndrome’. It turned out to be the paradigm of diseases associated with absent Th17 cells. This report follows the paper from Dr. Minegishi, Japan in Nature. 881 citations.

8. Salzer U, …, **Grimbacher B**. Mutations in TNFRSF13B encoding TACI are associated with common variable immunodeficiency in humans. ***Nat Genet***. 2005;37(8):820-8. doi: 10.1038/ng1600.

   This is the first decription of the role of TACI as the cause for immune dsyregulation and immune deficiency in humans. 503 citations.

9. **Grimbacher B**, …, Peter HH. Homozygous loss of ICOS is associated with adult-onset common variable immunodeficiency. ***Nat Immunol***. 2003;4(3):261-8. doi: 10.1038/ni902.

   This seminal discovery describes the first monogenic defect causing antibody deficiency (common variable immunodeficiency, CVID). Until then, the experts in the field assumed CVID to be a group of non-genetic diseases. 555 citations.

10. **Grimbacher B**, …, Puck JM. Hyper-IgE syndrome with recurrent infections--an autosomal dominant multisystem disorder. ***N Engl J Med***. 1999;340(9):692-702. doi: 10.1056/NEJM199903043400904.

    Fist comprehensive phenotypic description of Job's syndrome. This work presents my clincial work as a postdoc in Dr. Jennifer Puck's laboratory at the NIH. 535 citations.

Category B

1. U.S. patent application number 63/439,054, filed January 13, 2024 and entitled "Sequencing the B cell receptor repertoires of antibody-deficient individuals with and without infection susceptibility". Not related to the proposed research topic.
2. Public outreach: https://programm.ard.de/?sendung=28113385812571 https://www.uniklinik-freiburg.de/medizin-kompakt/immunsystem.html
3. Camacho-Ordonez N, …, **Grimbacher B**. Integrated Multi-omics Analyses of NFKB1 patients B cells points towards an up regulation of NF-κB network inhibitors. ***bioRxiv***. 2022:2022.11.22.517350. doi: 10.1101/2022.11.22.517350.

   Exemplifies the work of the applicant on the analysis and integration of omics datasets of patients with NFKB1 insufficiency.

4. Greiner-Tollersrud OK, …, **Grimbacher B**, …, Proietti M. ADA2 is a lysosomal DNase regulating the type-I interferon response. ***bioRxiv***. 2020:2020.06.21.162990. doi: 10.1101/2020.06.21.162990..

   Discovery of a novel DNA-editing enzyme, when identification of nucleic acid sensing and editing molecules was considered exhausted. Compelling example of a young talented researcher, endowed with the necessary infrastructure and the space, to independently develop an own project area. Prof. Proietti started as a postdoc with me and had the idea of this work at the first DADA2 meeting which we both attended at the NIH.

Academic Distinctions

2019	Opening Lecture Immunology Department in Edmonton, Alberta, Canada
2017	William T. Shearer Lectureship Grand Rounds, Houston, USA
2017	Quo Vadis Lecture, AG Dermatologische Forschung, Göttingen, Germany
2012	Watson Memorial Lecture, University of Newcastle, UK
2010 – 2011	Member of London Medical Research Club, UK
2009	Thieme Research Prize of the Leopoldina, Halle, Germany
2008	Richard S. Farr Memorial Lecture at the AAAI
2007	Rudolf-Schoen Prize from the Hannover Medical School
2006	Marie-Curie Excellence Award of the European Commission for four years
2006	Georges Köhler Award 2006 of the DGfI
2002	Admission to the Emmy Noether program of the DFG
1999	Fellow of the Immunodeficiency Foundation (IDF)