

Busch, Dirk

Prof. Dr. med., * 11.06.1966, male

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TUM School of Medicine

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Current position

Chair of Institute for Medical Microbiology, Immunology and Hygiene, TUM School of Medicine,
Technical University of Munich

Academic training

1992 - 1993 Study of Human Medicine, University of Freiburg

1987 - 1992 Study of Human Medicine, University of Mainz

Academic degrees

2003 Habilitation in Microbiology and Immunology; Ex vivo Analyse antigen-spezifischer T-Zellantworten (TUM, supervisor: Prof. Dr. Drs. h.c. mult. Hermann Wagner)

1993 Dr. med.; Vergleichende Untersuchungen des immunreaktiven Galanins im Pankreas und Darm (Universität Mainz, supervisor: Prof. Schrezenmeier)

Postgraduate positions

since 2009 Director, W3 Professor, Institute for Medical Microbiology and Immunology,
Technical University of Munich

2004 - 2008 C3-Professor for Medical Microbiology and Immunology, Technical University
of Munich

1999 - 2004 Senior Researcher, Technical University of Munich

1996 - 1999 Postdoctoral Researcher at the Section of Infectious Diseases and
Immunobiology, Laboratory of Prof. Eric Pamer, Yale University, New
Haven/USA

1994 - 1996 Postdoctoral Researcher at the Laboratory of Pediatric Rheumatology,
Laboratory of Prof. H.I. Huppertz, University of Würzburg

1990 - 1993 Predoctoral Research Fellow (M.D.), Endocrinology, University of Mainz

Private enterprise positions

- 2015 Co-founder of T Cell Factory B.V. (now Kite Pharma/Gilead)
2005 Co-founder of STAGE cell therapeutics (now Juno therapeutics/Celgene)

Honors, awards and professional activities

- 2017 Elected member of the National Academy of Sciences Leopoldina
2015 Visiting Scientist of the Australasian Society for Immunology
2010 Member of the Institute of Advanced Study (IAS) at TUM
2008 Science Day Award, Helmholtz Zentrum München
2003 Wilhelm Vaillant Prize, Munich
2002 Hans Krebs Prize, Hannover
2002 Robert Koch Postdoc Award
2000 Gerhard Hess Research Award from DFG
1999 Howard Hughes Medical Institute Postdoc Fellowship

Patents

- Method for reversibly staining a target cell, US Patent 9,188,589
Allorestricted peptide-specific T cells, US Patent 8,217,009
Reversible MHC Multimer Färbung, US Patent 7,776,652
Reversible MHC Multimer Färbung, Patent Kanada 2,467,434
Reversible MHC Multimer Färbung, Patent Japan 4,416,400

15 most important publications

1. Treise I, Huber EM, **Busch DH**. Defective immuno- and thymoproteasome assembly causes severe immunodeficiency. *Sci Rep*. 2018 Apr 13;8(1):5975
2. **Busch DH**, Fräßle SP, Sommermeyer D et al. Role of memory T cell subsets for adoptive immunotherapy. *Semin Immunol*. 2016 Feb;28(1):28-34
3. Neuenhahn M, Albrecht J,.... **Busch,DH*** and Grigoleit GU*. Transfer of minimally manipulated CMV-specific T cells from stem cell or third-party donors to treat CMV infection after allo-HSCT. *Leukemia* 2017; 31:2161-2171 (*contributed equally).
4. Paszkiewicz PJ, Frassle SP, **Busch,DH** Targeted antibody-mediated depletion of murine CD19 CAR T cells permanently reverses B cell aplasia. *J Clin Invest* 2016;126:4262-4272.
5. Graef P, Buchholz VR, **Busch,DH** Serial transfer of single-cell-derived immunocompetence reveals stemness of CD8(+) central memory T cells. *Immunity* 2014;41:116-26.
6. Stemberger C, Graef P, **Busch,DH**, Neuenhahn M. Lowest numbers of primary CD8(+) T cells can reconstitute protective immunity upon adoptive immunotherapy. *Blood* 2014;124:628-37.
7. Nauerth M, Weissbrich B, **Busch,DH**. TCR-ligand koff rate correlates with the protective capacity of antigen-specific CD8+ T cells for adoptive transfer. *Sci Transl Med* 2013;5:192ra87.
8. Dössinger G, Bunse M, **Busch,DH**. MHC Multimer-Guided and Cell Culture-Independent Isolation of Functional T Cell Receptors from Single Cells Facilitates TCR Identification for Immunotherapy. *PLoS One* 2013;8:e61384.

9. Buchholz VR, Flossdorf M, **Busch,DH**. Disparate individual fates compose robust CD8+ T cell immunity. *Science* 2013;340:630-5.
10. Verschoor A, Neuenhahn M, **Busch,DH**. A platelet-mediated system for shuttling blood-borne bacteria to CD8alpha(+) dendritic cells depends on glycoprotein GPIb and complement C3. *Nat Immunol* 2011;12:1194-201.
11. Knabel M, Franz, TJ, **Busch,DH**. Reversible MHC multimer staining for functional isolation of T-cell populations and effective adoptive transfer, *Nat Med* 2002; 8: 631-637.
12. **Busch DH**, Pilip IM, Vijn S et al. Coordinate regulation of complex T cell populations responding to bacterial infection. *Immunity* 1998; 8: 353-362.
13. Huppertz HI, Rutkowski S, **Busch DH** et al. Bovine colostrum ameliorates diarrhea in infection with diarrheagenic *Escherichia coli*, shiga toxin-producing *E. coli*, and *E. coli* expressing intimin and hemolysin. *J Pediatr Gastroenterol Nutr.* 1999 Oct;29(4):452-6.
14. **Busch DH**, Pilip I, Pamer EG. Evolution of a complex T cell receptor repertoire during primary and recall bacterial infection. *J Exp Med.* 1998 Jul 6;188(1):61-70.
15. **Busch DH**, Jassoy C, Brinckmann U et al. Detection of *Borrelia burgdorferi*-specific CD8+ cytotoxic T cells in patients with Lyme arthritis. *J Immunol.* 1996 Oct 15;157(8):3534-41.