

Prof. Dr. Bernd Bukau



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05/12/1954, Leipzig

Professor

SCIENTIFIC VITA

1974-1980 Universität Konstanz, Biology, Diplom 1980
1977 University of California, Santa Cruz (USA) Research stage
1983-1986 Universität Konstanz, Doctoral work, Dr. rer. nat. 1986
1986-1989 Massachusetts Institute of Technology, Cambridge, (USA). Postdoctoral fellow
1989-1997 ZMBH, Universität Heidelberg. Research assistant and project leader
1994 Habilitation and appointment as "Universitätsdozent" for Microbiology and Molecular Biology at the University of Heidelberg
1997-2002 C4-Professor for Biochemistry at the University of Freiburg, Institute of Biochemistry and Molecular Biology, Faculty of Medicine
2002-now C4-Professor for Molecular Biology at the University of Heidelberg, ZMBH

COORDINATING FUNCTIONS

2002 - 2004 Deputy Director of the ZMBH
2003 - 2008 Selection committee for the „Heinz Maier-Leibnitz-Prize“ of the DFG
2004 - now Rektoratskommission "BIOQUANT"
2004 - now Coordinating board of the SFB 638
2005 - now Director of the ZMBH
2005 - 2008 Coordinator of the Promotionskolleg Bioquant "Molecular machines: mechanisms and functional interconnections"
2008 – now Co-Director of the Alliance between the ZMBH and the German Cancer Research Center (DKFZ)
Editorial Boards of EMBO J., EMBO Reports, Biol. Chem., Faculty of 1000, Cell Stress & Chaperones, Eur. J. Biol. (until 2004), J. Bacteriol. (until 2005)

AWARDS

2000 Gottfried-Wilhelm-Leibniz-Prize of the DFG
2001 Elected EMBO member
2005 Elected member of the Deutsche Akademie der Naturforscher Leopoldina
2005 Leopoldina Forschungspreis

FIELDS OF INTEREST

Protein folding and quality control; Molecular chaperones and proteases; Cellular stress response

CURRENTLY FUNDED PROJECTS

DFG-project on Mechanisms of the interaction between cytosolic proteases of E.coli and substrates; DFG-project on Mechanism and protein disaggregation by the AAA+ chaperone ClpB; SFB 638 project A1; DFG-SPP 1132; Promotionskolleg Bioquant; VCI; Boehringer Ingelheim Fonds; EMBO; industry-support

Currently supervision of 4 diploma theses, 11 doctoral theses, 4 postdocs

PUBLICATIONS (10 selected publications)

Rodriguez, F., Arsene-Ploetze, F., Rist, W., Rüdiger, S., Schneider-Mergener, J., Mayer, M.P., **Bukau, B.** 2008. Molecular basis for regulation of the heat shock transcription factor sigma32 by the DnaK and DnaJ chaperones. *Mol. Cell* **32**, 347-358.

Haslberger, T., Zdanowicz, A., Brand, I., Kirstein, J., Turgay, K., Mogk, A., **Bukau, B.** 2008. Protein disaggregation by the AAA+ chaperone ClpB involves partial threading of looped polypeptide segments. *Nat. Struct. Mol. Biol.* **15**: 641-650.

Erbse, A., R. Schmidt, T. Bornemann, J. Schneider-Mergener, A. Mogk R. Zahn, D.A. Dougan and **B. Bukau**. 2006. ClpS is an essential component of the N-end rule pathway in Escherichia coli. *Nature* **439**: 753-756.

Vogel, M., **B. Bukau** and M.P. Mayer. 2006. Allosteric regulation of Hsp70 chaperones by a proline switch. *Mol. Cell* **21**: 359-367.

Weibezahn, J., P. Tessarz, C. Schlieker, R. Zahn, Z. Maglica, S. Lee, H. Zentgraf, E. Weber-Ban, D. Dougan, F.T.F. Tsai, A. Mogk and **B. Bukau**. 2004. Thermotolerance requires refolding of aggregated proteins by substrate translocation through the central pore of ClpB. *Cell* **119**: 653-665.

Ferbitz, L., T. Maier, H. Patzelt, **B. Bukau**, E. Deuerling, and N. Ban. 2004. Structure of the Trigger Factor chaperone complex with the ribosome defines the molecular environment of the emerging nascent protein chain. *Nature* **431**: 590-596.

Kramer, G., T. Rauch, W. Rist, S. Vorderwülbecke, H. Patzelt, A. Schulze-Specking, N. Ban, E. Deuerling and **B. Bukau**. 2002. L23 protein functions as a chaperone docking site on the ribosome. *Nature* **419**: 171-174.

Dougan, D.A., B.G. Reid, A.L. Horwich and **B. Bukau**. 2002. ClpS, a substrate modulator of the ClpAP machine. *Mol. Cell* **9**: 673-683.

Mayer, M.P., H. Schröder, S. Rüdiger, K. Paal, T. Laufen and **B. Bukau**. 2000. Multistep mechanism of substrate binding determines chaperone activity of Hsp70. *Nat. Struct. Biol.* **7**: 586-953.

Deuerling, E., A. Schulze-Specking, T. Tomoyasu, A. Mogk and **B. Bukau**. 1999. Trigger factor and DnaK cooperate in folding of newly synthesized proteins. *Nature* **400**: 693-696.

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