

Koch, Hans-Georg

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Email: Hans-Georg.Koch@biochemie.uni-freiburg.de
Position: Group leader, Professor for Biochemistry and Molecular Biology

Academic education including academic degrees

1984 – 1991 Diploma in Biology, Georg-August University Göttingen and Rheinische Friedrich-Wilhelms University Bonn

Scientific graduation

2000 Habilitation in Biochemistry and Molecular Biology; Faculty of Medicine, Albert-Ludwigs University Freiburg
1991 – 1994 Dr. rer. nat. Institute for Microbiology and Biotechnology, Rheinische Friedrich-Wilhelms University Bonn

Employment

since – 2009 Professor for Biochemistry and Molecular Biology
2000 – 2009 Associate Professor for Biochemistry and Molecular Biology
1997 – 1999 Post-Doc, Institute for Biochemistry and Molecular Biology, Albert-Ludwigs University Freiburg
1994 – 1997 Post-Doc, University of Pennsylvania, Department of Biology, Philadelphia, USA
1993 Guest Scientist, University of Cordoba, Spain

Other activities, awards and honours

Since 2024 Member Advisory Board 'Institut für medizinische und pharmazeutische Prüfungsfragen (IMPP)'
Since 2024 Member and Co-Chair Dr. sc. hum Committee, Faculty of Medicine
Since 2019 Member Executive Board CRC 1381 'Dynamic Organization of cellular protein machineries'
Since 2019 Associate Editor 'Scientific reports'
Since 2019 Co-Director Hans A. Krebs Medical Scientist Program, Medical Faculty, Albert-Ludwigs University Freiburg
Since 2017 Member of the DFG Priority Program 'Small proteins in bacteria, an unexplored world' (SPP 2002)
Since 2017 Member Editorial Board 'Molecular Microbiology'
Since 2017 Editor of the Textbook 'Biochemie und Pathobiochemie'; Springer Nature
Since 2017 Member 'American Society of Microbiology'
Since 2016 Member and Co-Chair RTG 2202 'Transport across and into Membranes'; Albert-Ludwigs University Freiburg

2016 - 2018	Chair of the Steering Committee on Structured Training for MD fellows at the Albert-Ludwigs University Freiburg
2015 - now	Member and Deputy member LGFG-Senates Committee, Albert-Ludwigs University Freiburg
2014 - now	Member and Co-Chair MD-Committee, Faculty of Medicine
2013 - now	Principle Investigator and Member Selection Committee of the Motivate MD college, Faculty of Medicine, Albert-Ludwigs University Freiburg
2012 - now	Member Executive Board and Vice-Director Spemann Graduate School of Biology and Medicine, Albert-Ludwigs University Freiburg
2012 - now	Associate Editor 'Frontiers in Microbiology'
2012 - 2022	Member Editorial Board 'Journal of Biological Chemistry'
2012 - now	Member Gesellschaft für Biochemie und Molekularbiologie (GBM)
2008 - 2014	Member DFG Research Unit 'Functions and mechanisms of ribosomal tunnel exit ligands' DFG-FOR 967
2008 - 2014	Member of the DFG-IRTG 'Membrane Proteins and Biological Membranes' (DFG-GRK 1478)
2008 - 2014	Member of the DFG Research Unit 'Dynamics of bacterial membrane proteins' (DFG-FOR 929)
2007 - now	Principle Investigator of the German-French graduate college 'Enzyme reactivities and their applications' of the German-French University (CDFA-04-07, together with the University of Strasbourg)
2004 - 2006	Member CRC 388 'Zelluläre Funktionen dynamischer Proteinwechselwirkungen'
1997 - now	Referee for the Deutsche Forschungsgemeinschaft, the 'German-Israeli Foundation for Scientific Research & Development', the National Science Foundation (NSF), USA, the National Institute of Health (NIH), USA, the European Research Council (ERC), the Alexander von Humboldt Stiftung, Germany, the French National Research Agency (ANR), France; the Research Foundation Flanders (FWO), Belgium; Netherlands Research Foundation (NWO), Netherlands, Swiss National Fonds (SNF), Switzerland, Hongkong Research Council (RGC), Hongkong.
1997	Young Scientist Award, Internat. Society for Photosynthesis
1997	Young Scientist Grant, Fed. Europ. Microbiol. Societies (FEMS)
1994 - 1997	NIH-Post-Doctoral Fellowship, National Institute of Health, USA
1994 - 1997	Scientific Advisor, 'Lew-Tilney Fellowship Program', University of Pennsylvania, Philadelphia, USA
1990 – now	Member Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM)
1991 - 1994	PhD Fellowship, Studienstiftung des Deutschen Volkes

Ten most important publications

- Njenga et al., (2024) Ribosome inactivation by a class of widely distributed C-tail anchored membrane proteins. **Structure** 32, 1-17, doi: 10.1016/j.str.2024.09.019
- Fielden, L. et al., (2023) Central role of Tim17 in mitochondrial presequence protein translocation. **Nature** 621, 627-634, doi: 10.1038/s41586-023-06477-8
- Sarmah, P. et al., (2023) mRNA targeting eliminates the need for the signal recognition particle during membrane protein insertion in bacteria. **Cell reports** 42, 112140, doi: 10.1016/j.celrep.2023.112140
- Czech L. et al., (2022) Shutdown of secretory pathway by the bacterial alarmone (p)ppGpp. **Nature Comm.** 13:1069. doi: 10.1038/s41467-022-28675-0.
- Steinberg R. (2020) Post-translational insertion of small membrane proteins by the bacterial signal recognition particle. **PLoS Biology** 18(9), e30000874, doi: 10.1371/journal.pbio.3000874.
- Marckmann D. et al. (2019) The *ccb₃*-type cytochrome oxidase assembly factor CcoG is a widely distributed cupric reductase. **Proc. Natl. Acad. Sci. USA** 116, 21166-21175 doi: 10.1073/pnas.1913803116.
- Denks K. et al. (2017). The signal recognition particle contacts uL23 and scans substrate translation inside the ribosomal tunnel. **Nature Microbiol.** 2, 16215 doi: 10.1038/nmicrobiol.2016.265.
- Angelini S. et al. (2005). FtsY, the bacterial SRP receptor functionally and physically interacts with the SecYEG translocon. **EMBO Rep.** 6, 476-481 doi: 10.1038/sj.embor.7400385.
- Alami M. et al. (2003). Differential interactions between a twin-arginine signal peptide and its translocase in Escherichia coli. **Mol. Cell** 12, 937-946 doi: 10.1016/s1097-2765(03)00398-8.
- Neumann-Haefelin C. et al., (2000). SRP-dependent cotranslational targeting and SecA-dependent translocation analyzed as individual step in the export of a bacterial protein. **EMBO J.** 19, 6419-6426 doi: 10.1093/emboj/19.23.6419.