

Gerhard Multhaup

Freie Universität Berlin
Institute for Chemistry and Biochemistry
Thielallee 63 | D-14195 Berlin
Phone: +49 (0)30 838-55533
E-mail: multhaup@biochemie.fu-berlin.de



Curriculum vitae

- since 2008 Member, Steering Committee, “Competence Network for Degenerative Dementias” (KNDD), Federal Ministry of Education and Research (BMBF)
- 2002 – 2006 Coordinator, Priority Program “Cellular mechanisms of Alzheimer’s disease”, German Research Foundation (DFG)
- since 2003 Head, Department of Biochemistry, Freie Universität Berlin
- since 2002 University Professor (W3), Biochemistry, Freie Universität Berlin
- 1999 – 2002 Project group leader, Center for Molecular Biology at the University of Heidelberg (ZMBH)
- 1996 Habilitation, University of Heidelberg
- 1992 Junior group leader, ZMBH
- 1986 PhD, Institute of Genetics, University of Cologne
- 1986 Research, Prof. Dr. Colin L. Masters, M.D., Department of Pathology, University of Western Australia
- 1984 Diploma in Biology, University of Cologne
- 1979 – 1986 Studies in Biology, University of Cologne

Research fields

Our group is active in the field of cellular and molecular neurobiology, in the following major areas:

- Neurodegeneration and inflammation
- Amyloid toxicity and synaptic plasticity
- Molecular mechanisms of toxicity of mutant or misfolded aggregation prone proteins (including pathway analyses, gene regulation, and signaling processes)
- Enzyme mediated clearance and protecting mechanisms in late-stage diseases
- Nanomaterials for diagnosis and therapy

Activities in the scientific community, honors, awards

- 2010 International Copper Award, International Copper Association
- 2010 Board member, Verum Foundation
- 2007 Berlin-Brandenburg Academy of Sciences Award (to Lisa Munter, PhD thesis 2007)
- 2007 Innovation Award, Bioregions in Germany for diagnosis and therapy research
- 2005 Copper Award, International Copper Association
- 1999 Alzheimer Forschung Initiative (AFI)

Selected publications

Resenberger, UK, Harmeier, A, Woerner, AC, Goodman, JL, Muller, V, Krishnan, R, Vabulas, RM, Kretzschmar, HA, Lindquist, S, Hartl, FU, Multhaup, G, Winklhofer, KF and Tatzelt, J. The cellular prion protein mediates neurotoxic signalling of beta-sheet-rich conformers independent of prion replication. *EMBO J.* 2011; 30, 2057-70.

Richter, L, Munter, LM, Ness, J, Hildebrand, PW, Dasari, M, Unterreitmeier, S, Bulic, B, Beyermann, M, Gust, R, Reif, B, Weggen, S, Langosch, D and Multhaup, G. Amyloid beta 42 peptide (Abeta42)-lowering compounds directly bind to Abeta and interfere with amyloid precursor protein (APP) transmembrane dimerization. *Proc Natl Acad Sci U S A.* 2010; 107, 14597-602.

Munter, LM, Botev, A, Richter, L, Hildebrand, PW, Althoff, V, Weise, C, Kaden, D and Multhaup, G. Aberrant amyloid precursor protein (APP) processing in hereditary forms of Alzheimer disease caused by APP familial Alzheimer disease mutations can be rescued by mutations in the APP GxxxG motif. *J Biol Chem.* 2010; 285, 21636-43.

Kaden, D, Voigt, P, Munter, LM, Bobowski, KD, Schaefer, M and Multhaup, G. Subcellular localization and dimerization of APLP1 are strikingly different from APP and APLP2. *J Cell Sci.* 2009; 122, 368-77.

Harmeier, A, Wozny, C, Rost, BR, Munter, LM, Hua, H, Georgiev, O, Beyermann, M, Hildebrand, PW, Weise, C, Schaffner, W, Schmitz, D and Multhaup, G. Role of amyloid-beta glycine 33 in oligomerization, toxicity, and neuronal plasticity. *J Neurosci.* 2009; 29, 7582-90.

Kessler, H, Pajonk, FG, Bach, D, Schneider-Axmann, T, Falkai, P, Herrmann, W, Multhaup, G, Wiltfang, J, Schafer, S, Wirths, O and Bayer, TA. Effect of copper intake on CSF parameters in patients with mild Alzheimer's disease: a pilot phase 2 clinical trial. *J Neural Transm.* 2008; 115, 1651-9.

Kaden, D, Munter, LM, Joshi, M, Treiber, C, Weise, C, Bethge, T, Voigt, P, Schaefer, M, Beyermann, M, Reif, B and Multhaup, G. Homophilic interactions of the amyloid precursor protein (APP) ectodomain are regulated by the loop region and affect beta-secretase cleavage of APP. *J Biol Chem.* 2008; 283, 7271-9.

Munter, LM, Voigt, P, Harmeier, A, Kaden, D, Gottschalk, KE, Weise, C, Pipkorn, R, Schaefer, M, Langosch, D and Multhaup, G. GxxxG motifs within the amyloid precursor protein transmembrane sequence are critical for the etiology of Abeta42. *EMBO J.* 2007; 26, 1702-12.

Schmechel, A, Zentgraf, H, Scheuermann, S, Fritz, G, Pipkorn, R, Reed, J, Beyreuther, K, Bayer, TA and Multhaup, G. Alzheimer beta-amyloid homodimers facilitate A beta fibrillization and the generation of conformational antibodies. *J Biol Chem.* 2003; 278, 35317-24.

Bayer, TA, Schafer, S, Simons, A, Kemmling, A, Kamer, T, Tepest, R, Eckert, A, Schussel, K, Eikenberg, O, Sturchler-Pierrat, C, Abramowski, D, Staufenbiel, M and Multhaup, G. Dietary Cu stabilizes brain superoxide dismutase 1 activity and reduces amyloid Abeta production in APP23 transgenic mice. *Proc Natl Acad Sci U S A.* 2003; 100, 14187-92.