

Curriculum vitae

Jochen Klein, Ph.D.

Professor of Pharmacology and Clinical Pharmacy

Office: University of Frankfurt College of Pharmacy
Biocenter, N260, Campus Riedberg
Max-von-Laue-Str. 9
D-60438 Frankfurt, Germany
e-mail klein@em.uni-frankfurt.de

SCIENTIFIC CAREER AND EDUCATION

- 2023/24 Retirement.
- 2007-2023 Teaching responsibilities (examples): Anatomy and physiology (2 semesters); physiology lab; pharmacology (full course, 3 semesters); pharmacology lab; clinical pharmacy (3 courses); interdisciplinary neuroscience.
- 2012-2016 Acting Chair, Department of Pharmacology, Goethe University College of Pharmacy
- Since 2007 Full Professor (W3), Department of Chemistry, Biochemistry and Pharmacy, Johann Wolfgang Goethe University of Frankfurt, Frankfurt, Germany.
- 2002-2007 Associate Professor, Department of Pharmaceutical Sciences, Texas Tech School of Pharmacy, Amarillo, TX. Tenure was awarded in March, 2006.
- 2001-2002 "Außerplanmäßiger Professor" (non-tenured professorship) at Department of Pharmacology, Johannes Gutenberg University of Mainz School of Medicine.
- 1996-2001 "Hochschuldozent" (University Docent) at Department of Pharmacology, Johannes Gutenberg University of Mainz School of Medicine.
- 1995 "Habilitation" (D. Sc., Lecturing qualification) for Pharmacology and Toxicology.
- 1993 Certification "Specialist in Pharmacology" DGPT (an advanced diploma issued by the German Society of Pharmacology and Toxicology).
- 1992-1996 "Wissenschaftlicher Assistent" (Assistant Professor) at Department of Pharmacology, Johannes Gutenberg University of Mainz School of Medicine.
- 1991 Certification "Specialist in Toxicology" DGPT (an advanced diploma issued by the German Society of Pharmacology and Toxicology; since 1998 Eurotox Registered Toxicologist).
- 1988-1992 Postdoctoral and Senior Research Associate at Department of Pharmacology, Johannes Gutenberg University of Mainz School of Medicine. Advisor: Konrad Löffelholz, M.D.
- 1987 Ph.D. (*summa cum laude*, "excellent"), Johannes Gutenberg University of Mainz School of Pharmacy.
- 1983-1987 Graduate student at Johannes Gutenberg University of Mainz. Advisor: Franz Oesch, Ph.D. (Department of Toxicology, School of Medicine).
- 1981-1982 Graduate student at Emory University School of Medicine, Departments of Biochemistry and Pharmacology (one-year DAAD stipend).
- 1981 "Approbation" (license) as pharmacist (equivalent to R.Ph.). University of Heidelberg School of Pharmacy.

1976-1980 Student at University of Heidelberg School of Pharmacy. 1st state examination 1978; 2nd state examination 1980.

PROFESSIONAL AND ACADEMIC SERVICE, HONORS

- Grant reviewer for various funding organisations (since 1992) including National Institutes of Health (NIH), Alzheimer Association, German Research Foundation (DFG), Medical Research Council (MRC), Wellcome Trust and many more.
- Member of Grant Review Panels for the Finnish Academy of Science (Suomen Akatemia) (2013-14, 2022-24)
- Member and Director of grant review panels for the Portuguese Foundation for Science FCT (2011-2012, 2021-2025)
- Committee memberships at Goethe University: college representative (Fachbereichsrat); Animal and animal house committee; Teaching and student committee etc.
- Member of an expert commission (“Humanbiologie”) at IMPP (2015-2025)
- Member of an expert commission for pre- and postdoctoral grants at DAAD (2016-2024)
- Editorial Board, Journal of Pharmacy and Pharmaceutical Sciences (2007-2024)
- Ad hoc Reviewer for >400 journal articles from >120 different journals (since 1990)
- More than 60 scientific invited oral communications (Conferences, LAK, DPhG, Night of Science)
- Major advisor for 21 Ph.D., 13 Master’s and 5 M.D. students. Member of >50 doctoral committees.
- Mentor and laboratory advisor of 5 postdoctoral associates, one “habilitation” (Martina Zimmermann, 2013).
- Chairman, Research Advisory Committee; member of the Graduate Program Committee and Graduate Council, TTUHSC School of Pharmacy (2002-2004)
- Member of the Organizing Committee of the Spring Meeting of the German Society for Pharmacology and Toxicology (1996-2002)
- Member in numerous university committees at Univ. of Heidelberg and Univ. of Mainz as representative of students and of scientific staff, including a term (1995-97) as a Senator for the Johannes Gutenberg University of Mainz (elected).
- Member of the Local Organizing Committee, and Proceedings Editor, IX. ISCM International Symposium on Cholinergic Mechanisms (Convener: K. Löffelholz)
- Broad teaching experience in anatomy and physiology, pathophysiology and mechanisms of disease, pharmacology (all fields) and clinical pharmacy. Ten institutional teaching awards.
- State examiner of students of dentistry (1993-2002), medicine (1997-2002), and pharmacy (2007-2024)
- Boehringer Ingelheim Prize for Medical Research for work on the “Homeostasis of brain choline” (1992)

RESEARCH EXPERTISE

- *In vivo*-microdialysis to evaluate central cholinergic systems (rats and mice).
- Microdialysis combined with middle cerebral artery occlusion in mice (stroke model).
- Microdialysis combined with status epilepticus (lithium-pilocarpine model)

- Measurements of arterio-venous differences across the brain, withdrawal of CSF.
- Measurements of cholinergic parameters: HACU/LACU, AChE, ChAT etc.
- Basic behavioural analysis of rats and mice (neurological and cognitive testing).
- Brain slices as *in vitro*-models of ischemia; ion flux assays in synaptosomes
- Primary cell cultures of neurons and astrocytes, e.g. for fluorescence microscopy (fura-2) and neurotoxicity assays.
- High-performance liquid chromatography for fmol determination of acetylcholine
- GC-MS-based determination of small carboxylic acids including ketone bodies
- Measurement of energy metabolites and mitochondrial functions (complexes I-IV)
- Measurements of phospholipase activation, e.g. phospholipase D
- Basic techniques in protein chemistry, cell and molecular biology (e.g. protein purification, electrophoresis, PCR, cell permeabilization with bacterial toxins).

RESEARCH ACCOMPLISHMENTS

- Identification of dihydrodiol dehydrogenase as a detoxifying pathway in the metabolism of carcinogenic aromatic hydrocarbons.
- Description of dynamics of choline entry into and release from the brain, and the parameters determining precursor control of acetylcholine synthesis.
- Investigations into the effect of genetically modified acetylcholinesterase (AChE) activities on central cholinergic parameters, especially acetylcholine release.
- Investigations of acetylcholine release in various animal models, e.g. rats with neuronal grafts, amyloid-bearing rats and mice, tau-transgenic mice etc.
- Sensitive detection of acetylcholine in non-neuronal tissues
- Demonstration of neuroprotective properties and anti-edema effects of bilobalide (from Ginkgo) using brain slices and middle cerebral artery occlusion *in vivo*.
- Neuroprotective effects of triheptanoin-rich diet and of ketone bodies in stroke
- Changes of energy metabolites and mitochondrial function during status epilepticus
- Suggestion of a novel hypothesis to explain fetal alcohol syndrome by the ethanol-specific disruption of the phospholipase D pathway.
- Mitochondrial effects of anaesthetic drugs and lactate formation
- Mitochondrial effects of methylene blue and anti-oxidative stress in the brain

FUNDING

My laboratory was or is being funded by the NIH (NIA, NCCAM), the Alzheimer Association, the German Research Association, the Stiftung VERUM, the Alfred Krupp von Bohlen und Halbach Stiftung/German Scholars Organisation, the LOEWE initiative (state of Hesse), by Novartis Company, Schwabe Pharmaceutical Co., TauRx and Wörwag Co.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

German Society for Pharmacology and Toxicology (DGPT) (Speaker for ANPT, 2014-2023)
 German Pharmaceutical Society (DPhG) (Speaker for FG Pharmakologie, 2013-2022)
 German Society for Neuroscience (NWG)