

Curriculum vitae

Name Bernd Kaina, Dr. rer. nat. habil.
Professor of Toxicology

Department Institute of Toxicology
Address Obere Zahlbacher Str. 67, 55131 Mainz
E-mail kaina@uni-mainz.de
Phone +49 (0)6131 17 9217



Main Research Fields

DNA repair and genotoxic signaling
Mechanisms of chemical carcinogenesis and food-borne carcinogens
Mechanisms of anticancer drugs and DNA damage-triggered survival and death pathways
DNA alkylating agents and natural genotoxic compounds

Scientific Career

1968-1975 Study of Biology, University Halle
1977 Ph.D. in Genetics, University Halle
1976-1984 Postdoctoral fellow and scientific coworker at the Central Institute of Genetics and Cultural Plant Breeding, Academy of Sciences of DDR, Gatersleben (East-Germany)
1984-1985 Grant holder of the C.E.C. (Communities of European Countries) at the Laboratory of Molecular Genetics, State University of Leiden (The Netherlands)
1985-1987 Guest researcher at the German Cancer Research Center, Department of Biochemistry, Heidelberg
1987-1993 Group leader at the Institute of Genetics and Toxicology, Kernforschungszentrum Karlsruhe and University of Karlsruhe
1990 Habilitation, University Karlsruhe
1992 Venia legendi for Genetics and Toxicology, University Karlsruhe
1993-2004 Professor of Toxicology (C3) and Head of the Division of Applied Toxicology at the Institute of Toxicology, Johannes Gutenberg University Mainz
2003 Appointed Professor of Toxicology (C4) and Chair of General and Medical Toxicology at the Medical Center, University Göttingen, rejected
2004-2018 Professor of Toxicology (C4) and Head of the Institute of Toxicology, University Medical Center, Mainz
since 2018 Senior group leader at the Institute of Toxicology, Mainz

Scholarships, Awards and Honors

1987-1992 Heisenberg research grant (Heisenberg-Stipendium) of the Deutsche Forschungsgemeinschaft
2000 Evaluation by "Laborjournal" (Volume 02/2000): First rank among the toxicologists in Germany/Austria/Switzerland
2007 Evaluation by "Laborjournal" (Volume 09/2007): First rank among the toxicologists in Germany/Austria/Switzerland
2010 Award of the German Society of Environmental Mutagenesis (GUM)
2011 Cancer Award of the German Cancer Society
2012 Toxicology Award of the German Society of Toxicology
2014 Ulrich-Hagen-Preis of the German Society of Radiation Biology (GBS)

Service to the Community

1998-2002	Founding member and first president of the German Society of DNA Repair (DGDR);
Since 1990	Reviewer for scientific journals
Since 1993	Reviewer for various scientific foundations, e.g. German Research Council (DFG), German Cancer Research Foundation, German-Israelian Foundation, Sander Foundation and others
Since 2004	Editorial Board Member of: DNA Repair, Mutation Research - Genetic Toxicology and Environmental Mutagenesis, Mutation Research - Fundamental and Molecular Mechanisms of Mutagenesis, Anticancer Research, International Journal of Oncology, Current Cancer Therapy Reviews.
2004-2010	Chairman of the DFG Research Unit FOR 527 "Susceptibility Factors of Tumorigenesis"
2008-2018	Representative for the German Research Council (DFG) of the University Mainz (DFG- Vertrauensdozent)
2004-2018	Spokesman of the Clinical-theoretical departments at the University Medical Center Mainz
2015-2018	Member of the Expert Commission of BfArM and BVL

Fundings (ongoing projects)

Deutsche Forschungsgemeinschaft (DFG) KA 724/31-1, Mechanismen der O6-Methylguanin induzierten Seneszenz und transkriptionellen Repression in Glioblastomzellen, 2018-2020

Deutsche Forschungsgemeinschaft (DFG) KA 724/29-1, Alkylantien-induzierte DNA-Schadensantwort und Rolle der DNA-Reparatur bei der Darmkrebsentstehung, 2014-2017

Deutsche Forschungsgemeinschaft (DFG) KA 724/28-1, DNA-Reparatur und DNA-Schadensantwort zur Aufrechterhaltung der Endothelfunktion bei genotoxischem Stress, 2014-2018

Deutsche Forschungsgemeinschaft (DFG) KA 724/20-2, Regulation der DNA-Reparatur und Zytostatika-Sensitivität durch Zytokine in immunkompetenten Zellen, 2013-2018

Deutsche Forschungsgemeinschaft (DFG) KA 724/18-3, Tumor-gerichtete Inhibition des DNA-Reparaturproteins MGMT zur Reduktion der Chemoresistenz und Verringerung der systemischen Toxizität, 2014-2017

Deutsche Krebshilfe AZ – 110005, Einfluss von Artesunat und Curcumin auf die Expression von DNA-Reparaturgenen und die Zytostatikasensitivität von Tumorzellen, 2012-2017

Selected Publications

Dörsam B, Seiwert N, Foersch S, Stroh S, Nagel G, Begaliew D, Diehl E, Kraus A, McKeague M, Minneker V, Roukos V, Reißig S, Waisman A, Moehler M, Stier A, Mangerich A, Dantzer F, **Kaina B**, Fahrer J. (2018) PARP-1 protects against colorectal tumor induction, but promotes inflammation-driven colorectal tumor progression., *Proc Natl Acad Sci U S A*, 115(17), 4061-4070.

Tomaszowski KH, Hellmann N, Ponath V, Takatsu H, Shin HW, **Kaina B**. (2017) Uptake of glucose-conjugated MGMT inhibitors in cancer cells: role of flippases and type IV P-type ATPases, *Scientific Reports*, 7(1):13925. doi: 10.1038/s41598-017-14129-x

Roos W.P., Thomas A.D., Kaina B. (2016) DNA damage and the balance between survival and death in cancer biology, *Nature Reviews Cancer*, 16, 20-33

Fahrer J., Frisch J., Nagel G., Kraus A., Dörsam B., Thomas A.D., Reißig S., Waisman A. and B. Kaina (2015) DNA repair by MGMT, but not AAG, causes a threshold in alkylation-induced colorectal carcinogenesis. *Carcinogenesis*, 36, 1235-1244

Roos, W.P., S. Quiros, A. Krumm, S. Mertz, O. Switzeny, M. Christmann, C. Loquai and B. Kaina (2014) B-Raf Inhibitor vemurafenib in combination with temozolomide and fotemustine in the killing response of malignant melanoma cells, *Oncotarget*, 5, 12607-12620

Tomicic M.T., Aasland D., Naumann S.C., Meise R., Barckhausen C., Kaina B., Christmann M. (2014). Translesion polymerase η Is upregulated by cancer therapeutics and confers anticancer drug resistance, *Cancer Res.*, 74, 5585-5596

Knizhnik, A.V., W.P. Roos, T. Nikolova, S. Quiros, K.H. Tomaszowski, M. Christmann and B. Kaina (2013) Survival and death strategies in glioma cells: autophagy, senescence and apoptosis triggered by a single type of temozolomide-induced DNA damage, *PLoS ONE*, 2013; 8(1):e55665

Bauer, M., M. Goldstein, D. Heylmann and B. Kaina (2012) Human monocytes undergo excessive apoptosis following temozolomide activating the ATM/ATR pathway while dendritic cells and macrophages are resistant, *PLoS ONE*, 7(6): e39956

Bauer, M., M. Goldstein, M. Christmann, H. Becker, D. Heylmann and B. Kaina (2011) Human monocytes are severely impaired in base and DNA double-strand break repair that renders them vulnerable to oxidative stress, *Proc. Natl. Acad. Sci. USA*, 108, 21105-21110.

Roos, W.P., E. Jöst, C. Belohlavek, G. Nagel, G. Fritz and B. Kaina (2011) Intrinsic anticancer drug resistance of malignant melanoma cells is abrogated by interferon- β and valproic acid, *Cancer Res.*, 15, 4150-4160

Batista LFZ., W.P. Roos, M. Christmann, CFM. Menck and B. Kaina (2007) Differential sensitivity of malignant glioma cells to methylating and chloroethylating anticancer drugs: p53 determines the switch by regulating xpc, ddb2 and DNA double-strand breaks, *Cancer Res.*, 67, 11886-11895

Briegert M. and B. Kaina (2007) Human monocytes, but not dendritic cells derived from them, are defective in base excision repair and hypersensitive to methylating agents, *Cancer Res.*, 67, 26-31

Roos W.P., M. Christmann, ST. Fraser and B. Kaina (2007) Mouse embryonic stem cells are hypersensitive to apoptosis triggered by the DNA damage O6-methylguanine due to high E2F1 regulated mismatch repair, *Cell Death Diff.*, 14, 1422-1432