

A1	Project Code	IPA-23 GenTox
A2	Project Title	Genotoxicity of chemicals
A3	External Cooperation Partners	Institut National de Recherche et de Sécurité (INRS); France University of Cincinnati, Cincinnati, OH, USA
A4	Project Manager(s)	Dr. Sabine Plöttner

B1 – Aims
<ul style="list-style-type: none"> • Use of multiple genotoxicity tests to study DNA damage of chemicals in humans (in vivo) and in cell lines (in vitro). • Improving methods to assess genotoxicity and mutagenicity of chemicals, e.g., developing high-throughput methods based on flow cytometry or automated methods based on imaging microscopy to assess chemically-induced mutagenic effects in exposed workers. • Identifying early genotoxic events such as the formation of DNA adducts in vivo and in vitro.
B2 – Endpoints/Substances and Methods of Interest
<ul style="list-style-type: none"> • PAH-induced lung and bladder cancer, e.g., in coke oven workers • Metal-induced lung cancer, e.g., in welders • Aromatic amine-induced bladder cancer • Imaging Microscopy • Flow Cytometry
B3 – Selected Publications
<p>Pesch B, Lotz A, Koch HM, Marczyński B, Casjens S, Käfferlein HU, Welge P, Lehnert M, Heinze E, Van Gelder R, Hahn JU, Behrens T, Raulf M, Hartwig A, Weiss T, Brüning T (2015) Oxidatively damaged guanosine in white blood cells and in urine of welders: associations with exposure to welding fumes and body iron stores. <i>Arch. Toxicol.</i> <u>89</u>: 1257-1269.</p> <p>Köhler CU, Martin L, Bonberg N, Behrens T, Deix T, Braun K, Noldus J, Jöckel KH, Erbel R, Sommerer F, Tannapfel A, Harth V, Käfferlein HU, Brüning T (2014) Automated quantification of FISH signals in urinary cells enables the assessment of chromosomal aberration patterns characteristic for bladder cancer. <i>Biochem. Biophys. Res. Commun.</i> <u>448</u>: 467-472.</p> <p>Talaska G, Thoroman J, Schuman B, Käfferlein HU (2014) Biomarkers of polycyclic aromatic hydrocarbon exposure in European coke oven workers. <i>Toxicol. Lett.</i> <u>231</u>: 213-216.</p> <p>Käfferlein HU, Marczyński B, Simon P, Angerer J, Rihs HP, Wilhelm M, Straif K, Pesch B, Brüning T (2012) Internal exposure to carcinogenic polycyclic aromatic hydrocarbons and DNA damage: a null result in brief. <i>Arch. Toxicol.</i> <u>86</u>: 1317-1321.</p> <p>Marczyński B, Raulf-Heimsoth M, Spickenheuer A, Pesch B, Kendzia B, Mensing T, Engelhardt B, Lee EH, Schindler BK, Heinze E, Welge P, Bramer R, Angerer J, Breuer D, Käfferlein HU, Brüning T (2011) DNA adducts and strand breaks in workers exposed to vapours and aerosols of bitumen: associations between exposure and effect. <i>Arch. Toxicol.</i> <u>85</u>: S53-64.</p> <p>Welge P, Marczyński B, Raulf-Heimsoth M, Spickenheuer A, Kendzia B, Heinze E, Angerer J, Käfferlein HU, Pesch B, Brüning T (2011) Assessment of micronuclei in lymphocytes from workers exposed to vapours and aerosols of bitumen. <i>Arch. Toxicol.</i> <u>85</u>: S65-71.</p>