

## Areas of research:

1. Aryl hydrocarbon receptor (AhR) studies – modes of action, induction of XMEs, genotoxicity, relative effective potencies
2. Endocrine-disrupting activities of environmental aromatic contaminants (PCBs, PAHs, PACs)
3. Carcinogenesis, developmental biology and other processes related to tissue-specific toxicity
4. Complex environmental mixtures - toxicology in vitro
5. Nanotoxicology
6. Lipidomics (modulations linked to carcinogenesis and toxicity of environmental contaminants, lipid biomarkers) – determination of SLs, PLs, FAs and eicosanoids
7. Ecotoxicology

## Selected publications (2001-2026)

Theodoropoulou A, Nasrallah A, Abriata LA, Laurence Abrami L, Da Graca J, Kaysudu I, Talotta F, Marcaida MJ, Anwar MU, Kováč O, Vakhrushev SY, Calleja A, Ho S, Asaro A, Mesquita FS, Alieh L, Gehin Ch, Bracq L, Gorsek N, Vacle S, Samurkas A, Prunotto A, Fusar Bassini L, Machala M, Naveiras O, Schjoldager KT, van der Goot FG, Dal Peraro M, D'Angelo G. Molecular regulation and physiological role of GOLPH3-mediated Golgi retention. *Nat. Commun*, accepted.

Lujka B, Šošolíková T, Vázquez-Gómez G, Kováč O, Machala M, Hyršlová Vaculová A, Vondráček J. Downregulation of lactosylceramide synthases B4GALT5 or B4GALT6 alters glycosphingolipid profiles and enhances oxaliplatin sensitivity in colon cancer cells. *Curr Res Toxicol*, accepted.

IARC (2025). Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). *IARC Monogr Identif Carcinog Hazards Hum*. 135:1–754.

Kulich P, Marvanová S, Skoupý R, Škorič M, Vysloužil J, Šerý O, Mikuška P, Alexa L, Coufalík P, Křůmal K, Moravec P, Večeřa Z, Machala M. Subchronic inhalation of TiO<sub>2</sub> nanoparticles leads to deposition in the lung and alterations in erythrocyte morphology in mice. *J Appl Toxicol*. 2025, 45(6):1004-1018. doi: 10.1002/jat.4759.

Kováč O, Strapáčová S, Hýžd'alová M, Pěňčíková K, Straková N, Slováčková J, Kotouček J, Kulich P, Vondráček J, Machala M. Disruption of sphingolipid and glycosphingolipid profiles in human bronchial epithelial cells and extracellular vesicles during gradual benzo[a]pyrene-induced epithelial-to-mesenchymal transition. *Environ Res*. 2025, 285(Pt 5):122699. doi: 10.1016/j.envres.2025.122699. Procházková J, Fedr R, Hradilová B, Kvokačková B, Slavík J, Kováč O, Machala M, Fabian P, Navrátil J, Kráčalíková S, Levková M, Ovesná P, Bouchal J, Souček K. Single-cell profiling of surface glycosphingolipids opens a new dimension for deconvolution of breast cancer intratumoral heterogeneity and phenotypic plasticity. *J Lipid Res*. 2024 Sep;65(9):100609. doi: 10.1016/j.jlr.2024.100609.

Hýžd'alová M, Procházková J, Straková N, Pěňčíková K, Strapáčová S, Slováčková J, Kajabová S, Líbalová H, Topinka J, Kabátková M, Vondráček J, Mollerup S, Machala M. Transcriptional and phenotypical alterations associated with a gradual benzo[a]pyrene-

induced transition of human bronchial epithelial cells into mesenchymal-like cells. *Environ Toxicol Pharmacol.* 2024, 107, 104424.

Šimečková P, Slavík J, Fořtová A, Huvarová I, Králíková L, Stefanik M, Svoboda P, Ruzek D, Machala M. Tick-borne encephalitis virus modulates sphingolipid and phospholipid metabolism in infected human neuronal cells. *Microbes and Infections*, 2024, 24, 105303. <https://doi.org/10.1016/j.micinf.2024.105303>

Zahm S, Bonde JP, Chiu WA, Hoppin J, Kanno J, Abdallah M, Blystone CR, Calkins MM, Dong GH, Dorman DC, Fry R, Guo H, Haug LS, Hofmann JN, Iwasaki M, Machala M, Mancini FR, Maria-Engler SS, Møller P, Ng JC, Pallardy M, Post GB, Salihovic S, Schlezinger J, Soshilov A, Steenland K, Steffensen IL, Tryndyak V, White A, Woskie S, Fletcher T, Ahmadi A, Ahmadi N, Benbrahim-Tallaa L, Bijoux W, Chittiboyina S, de Conti A, Facchin C, Madia F, Mattock H, Merdas M, Pasqual E, Suonio E, Viegas S, Zupunski L, Wedekind R, Schubauer-Berigan MK. Carcinogenicity of perfluorooctanoic acid and perfluorooctanesulfonic acid. *Lancet Oncol.* 2023, S1470-2045(23)00622-8. doi: 10.1016/S1470-2045(23)00622-8.

Holme JA, Vondráček J, Machala M, Lagadic-Gossmann D, Vogel CFA, Le Ferrec E, Sparfel L, Øvrevik J. Lung cancer associated with combustion particles and fine particulate matter (PM<sub>2.5</sub>) - The roles of polycyclic aromatic hydrocarbons (PAHs) and the aryl hydrocarbon receptor (AhR). *Biochem Pharmacol.* 2023, 216, 115801. doi: 10.1016/j.bcp.2023.115801.

Holme JA, Låg M, Skuland T, Parenicová M, Ciganek M, Penciková K, Grytting VS, Neca J, Øvrevik J, Mariussen E, Jørgensen RB, Refsnes M, Machala M. Characterization of elements, PAHs, AhR-activity and pro-inflammatory responses of road tunnel-derived particulate matter in human hepatocyte-like and bronchial epithelial cells. *Toxicol In Vitro.* 2023, 90, 105611. doi: 10.1016/j.tiv.2023.105611.

Marvanová S, Pěničková K, Pálková L, Ciganek M, Petráš J, Lněničková A, Vondráček J, Machala M. Benzo[b]naphtho[d]thiophenes and naphthylbenzo[b]thiophenes: Their aryl hydrocarbon receptor-mediated activities and environmental presence. *Sci Total Environ.* 2023, 879, 162924. doi: 10.1016/j.scitotenv.2023.162924.

Karasová M, Procházková J, Tylichová Z, Fedr R, Ciganek M, Machala M, Dvořák Z, Vyhlídalová B, Zůvalová I, Ehrmann J, Bouchal J, Andrysík Z, Vondráček J. Inhibition of aryl hydrocarbon receptor (AhR) expression disrupts cell proliferation and alters energy metabolism and fatty acid synthesis in colon cancer cells. *Cancers (Basel).* 2022, 14(17), 4245. doi: 10.3390/cancers14174245.

Vázquez-Gómez G, Karasová M, Tylichová Z, Kabátková M, Hampl A, Matthews J, Neča J, Ciganek M, Machala M, Vondráček J. Aryl hydrocarbon receptor (AhR) limits the inflammatory responses in human lung adenocarcinoma A549 cells via interference with NF- $\kappa$ B signaling. *Cells.* 2022, 11, 707. doi: 10.3390/cells11040707.

Líbalová H, Závodná T, Vrbová K, Sikorová J, Vojtíšek-Lom M, Beránek V, Pechout M, Kléma J, Ciganek M, Machala M, Neča J, Rössner P Jr, Topinka J. Transcription profiles in BEAS-2B cells exposed to organic extracts from particulate emissions produced by a port-fuel injection vehicle, fueled with conventional fossil gasoline and gasoline-ethanol blend.

Mutat Res Genet Toxicol Environ Mutagen. 2021, 872, 503414. doi: 10.1016/j.mrgentox.2021.503414.

Šimečková P, Pěničková K, Kováč O, Slavík J, Pařenicová M, Vondráček J, Machala M. In vitro profiling of toxic effects of environmental polycyclic aromatic hydrocarbons on nuclear receptor signaling, disruption of endogenous metabolism and induction of cellular stress. *Sci Total Environ.* 2022, 815:151967. doi: 10.1016/j.scitotenv.2021.151967.

Slováčková J, Slavík J, Kulich P, Večeřa J, Kováč O, Paculová H, Straková N, Fedr R, Silva JP, Carvalho F, Machala M, Procházková J. Polychlorinated environmental toxicants affect sphingolipid metabolism during neurogenesis in vitro. *Toxicology.* 2021, 463, 152986. doi: 10.1016/j.tox.2021.152986.

Machala M, Slavík J, Kováč O, Procházková J, Pěničková K, Pařenicová M, Straková N, Kotouček J, Kulich P, Mollerup S, Vondráček J, Hýžd'alová M. Changes in sphingolipid profile of benzo[a]pyrene-transformed human bronchial epithelial cells are reflected in the altered composition of sphingolipids in their exosomes. *Int J Mol Sci.* 2021, 22, 9195. doi: 10.3390/ijms22179195.

Hofmanová J, Slavík J, Ciganek M, Ovesná P, Tylichová Z, Karasová M, Zapletal O, Straková N, Procházková J, Bouchal J, Kolář Z, Ehrmann J, Levková M, Hušková Z, Skalický P, Kozubík A, Machala M, Vondráček J. Complex alterations of fatty acid metabolism and phospholipidome uncovered in isolated colon cancer epithelial cells. *Int J Mol Sci.* 2021, 22, 6650. doi: 10.3390/ijms22136650.

Vondráček J, Machala M. The role of metabolism in toxicity of polycyclic aromatic hydrocarbons and their non-genotoxic modes of action. *Curr Drug Metab.* 2021, 22, 584-595. doi: 10.2174/1389200221999201125205725.

Hýžd'alová M, Procházková J, Strapáčová S, Svržková L, Vacek O, Fedr R, Andrysík Z, Hrubá E, Líbalová H, Kléma J, Topinka J, Mašek J, Souček K, Vondráček J, Machala M. A prolonged exposure of human lung carcinoma epithelial cells to benzo[a]pyrene induces p21-dependent epithelial-to-mesenchymal transition (EMT)-like phenotype. *Chemosphere.* 2021, 263, 128126. <https://doi.org/10.1016/j.chemosphere.2020.128126>

Vondráček J, Pěničková K, Ciganek M, Pivnička J, Karasová M, Hýžd'alová M, Strapáčová S, Pálková L, Neča J, Mathews J, Vojtíšek Lom M, Topinka J, Milcová A, Machala M. Environmental six-ring polycyclic aromatic hydrocarbons are potent inducers of the AhR-dependent signaling in human cells. *Environ Pollut.* 266 (2020) 115125. <https://doi.org/10.1016/j.envpol.2020.115125>

Procházková J, Slavík J, Bouchal J, Levková M, Hušková Z, Ehrmann J, Ovesná P, Kolář Z, Skalický P, Straková N, Zapletal O, Kozubík A, Hofmanová J, Vondráček J, Machala M. Specific alterations of sphingolipid metabolism identified in EpCAM-positive cells isolated from human colon tumors. *Biochim Biophys Acta Mol Cell Biol Lipids.* 2020, 1865, 158742. doi: 10.1016/j.bbalip.2020.158742.

Rossner P Jr, Vrbová K, Rossnerová A, Závodná T, Milcová A, Kléma J, Večeřa Z, Mikuška P, Coufalík P, Čapka L, Křůmal K, Dočekal B, Holan V, Machala M, Topinka J. *Gene*

expression and epigenetic changes in mice following inhalation of copper(II) oxide nanoparticles. *Nanomaterials (Basel)*. 2020, 10, 550. doi: 10.3390/nano10030550.

Šimečková P, Hubatka F, Kotouček J, Turánek Knötigová P, Mašek J, Slavík J, Kováč O, Neča J, Kulich P, Hřebík D, Stráská J, Pěňčíková K, Procházková J, Diviš P, Macaulay S, Mikulík R, Raška M, Machala M, Turánek J. Gadolinium labelled nanoliposomes as the platform for MRI theranostics: in vitro safety study in liver cells and macrophages. *Sci Rep*. 2020, 10, 4780. doi: 10.1038/s41598-020-60284-z.

Hofmanová J, Slavík J, Ovesná P, Tylichová Z, Dušek L, Straková N, Vaculová AH, Ciganek M, Kala Z, Jíra M, Penka I, Kyclová J, Kolář Z, Kozubík A, Machala M, Vondráček J. Phospholipid profiling enables to discriminate tumor- and non-tumor-derived human colon epithelial cells: Phospholipidome similarities and differences in colon cancer cell lines and in patient-derived cell samples. *PLoS One*. 2020, 15:e0228010. doi: 10.1371/journal.pone.0228010.

Vysloužil J, Kulich P, Zeman T, ..., Balcar VJ, Šerý O. Subchronic continuous inhalation exposure to zinc oxide nanoparticles induces pulmonary cell response in mice. *Journal of Trace Elements in Medicine and Biology*, 2020, 61, 126511.

Šimečková P, Marvanová S, Kulich P, Králiková L, Neča J, Procházková J, Machala M. Screening of cellular stress responses induced by ambient aerosol ultrafine particle fraction PM0.5 in A549 cells. *Int J Mol Sci*. 2019, 20, 6310. doi: 10.3390/ijms20246310.

Machala M, Procházková J, Hofmanová J, Králiková L, Slavík J, Tylichová Z, Ovesná P, Kozubík A, Vondráček J. Colon cancer and perturbations of the sphingolipid metabolism. *Int J Mol Sci*. 2019, 20, 6051. doi: 10.3390/ijms20236051.

Svobodová J, Procházková J, Šmerdová L, Líbalová H, Topinka J, Kléma J, Kozubík A, Machala M, Vondráček J. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) disrupts control of cell proliferation and apoptosis in a human model of adult liver progenitors. *Toxicol Sci*. 2019, 172, 368-384. doi: 10.1093/toxsci/kfz202.

Knötigová PT, Mašek J, Hubatka F, Kotouček J, Kulich P, Šimečková P, Bartheldyová E, Machala M, Švadlákova T, Krejsek J, Vaškovicevá N, Skoupý R, Krzyžánek V, Macaulay S, Katzuba M, Fekete L, Ashcheulov P, Raška M, Kratochvílová I, Turánek J. Application of advanced microscopic methods to study the interaction of carboxylated fluorescent nanodiamonds with membrane structures in THP-1 cells: Activation of inflammasome NLRP3 as the result of lysosome destabilization. *Mol Pharm*. 2019, 16, 3441-3451. doi: 10.1021/acs.molpharmaceut.9b00225.

Pěňčíková K, Ciganek M, Neča J, Illés P, Dvořák Z, Vondráček J, Machala M. Modulation of endocrine nuclear receptor activities by polyaromatic compounds present in fractionated extracts of diesel exhaust particles. *Sci Total Environ*. 2019, 677, 626-636. doi: 10.1016/j.scitotenv.2019.04.390.

Holan V, Javorkova E, Vrbova K, Vecera Z, Mikuska P, Coufalik P, Kulich P, Skoupy R, Machala M, Zajicova A, Rossner P. A murine model of the effects of inhaled CuO nanoparticles on cells of innate and adaptive immunity - a kinetic study of a continuous three-month exposure. *Nanotoxicology*. 2019, 13, 952-963. doi: 10.1080/17435390.2019.1602679.

Tylichová Z, Neča J, Topinka J, Milcová A, Hofmanová J, Kozubík A, Machala M, Vondráček J. n-3 Polyunsaturated fatty acids alter benzo[a]pyrene metabolism and genotoxicity in human colon epithelial cell models. *Food Chem Toxicol.* 2019, 124, 374-384. doi: 10.1016/j.fct.2018.12.021.

Vondráček J, Pivnička J, Machala M. Polycyclic aromatic hydrocarbons and disruption of steroid signaling: History, recent advances and open questions. *Current Opinion in Toxicology*, 2018, 11-12, 27–34.

Rossner P, Vrbova K, Strapacova S, Rossnerova A, Ambroz A, Brzicova T, Libalova H, Javorkova E, Kulich P, Vecera Z, Mikuska P, Coufalik P, Krumal K, Capka L, Docekal B, Moravec P, Sery O, Misek I, Fictum P, Fiser K, Machala M, Topinka J. Inhalation of ZnO nanoparticles: splice junction expression and alternative splicing in mice. *Toxicol Sci.* 2019, 168, 190-200. doi: 10.1093/toxsci/kfy288.

Rynning I, Arlt VM, Vrbová K, Neča J, Rossner P, Klema J, Ulvestad B, Petersen E, Skare Ø, Haugen A, Phillips DH, Machala M, Topinka J, Mollerup S. Bulky DNA adducts, microRNA profiles, and lipid biomarkers in Norwegian tunnel finishing workers occupationally exposed to diesel exhaust. *Occup Environ Med.* 2019, 76, 10-16.

Marvanová S, Kulich P, Skoupý R, Hubatka F, Ciganek M, Bendl J, Hovorka J, Machala M. Size-segregated urban aerosol characterization by electron microscopy and dynamic light scattering and influence of sample preparation. *Atmospheric Environment* 2018, 178, 181-190.

Pěničková K, Brenerová P, Svržková L, Hrubá E, Pálková L, Vondráček J, Lehmler HJ, Machala M. Atropisomers of 2,2',3,3',6,6'-hexachlorobiphenyl (PCB 136) exhibit stereoselective effects on activation of nuclear receptors in vitro. *Environ Sci Pollut Res Int.* 2018, 25, 16411-16419.

Libalova H, Rossner P, Vrbova K, Brzicova T, Sikorova J, Vojtisek-Lom M, Beranek V, Klema J, Ciganek M, Neca J, Machala M, Topinka J. Transcriptional response to organic compounds from diverse gasoline and biogasoline fuel emissions in human lung cells. *Toxicol In Vitro.* 2018, 48, 329-341.

Pěničková K, Svržková L, Strapáčová S, Neča J, Bartoňková I, Dvořák Z, Hýžd'alová M, Pivnička J, Pálková L, Lehmler HJ, Li X, Vondráček J, Machala M. In vitro profiling of toxic effects of prominent environmental lower-chlorinated PCB congeners linked with endocrine disruption and tumor promotion. *Environ Pollut.* 2018, 237, 473-486.

Strapáčová S, Brenerová P, Krčmář P, Andersson P, van Ede KI, van Duursen MBM, van den Berg M, Vondráček J, Machala M. Relative effective potencies of dioxin-like compounds in rodent and human lung cell models. *Toxicology.* 2018, 404-405, 33-41.

Procházková J, Strapáčová S, Svržková L, Andryšák Z, Hýžd'alová M, Hrubá E, Pěničková K, Líbalová H, Topinka J, Kléma J, Espinosa JM, Vondráček J, Machala M. Adaptive changes in global gene expression profile of lung carcinoma A549 cells acutely exposed to distinct types of AhR ligands. *Toxicol Lett.* 2018, 292, 162-174.

Rynning I, Neca J, Vrbova K, Libalova H, Rossner P Jr, Holme JA, Gützkow KB, Afanou AKJ, Arnoldussen YJ, Hrubá E, Skare Ø, Haugen A, Topinka J, Machala M, Mollerup S. In vitro transformation of human bronchial epithelial cells by diesel exhaust particles: gene expression profiling and early toxic responses. *Toxicol Sci.* 2018, 166, 51-64.

Hýžd'alová M, Pivnička J, Zapletal O, Vázquez-Gómez G, Matthews J, Neca J, Pencíková K, Machala M, Vondráček J. Aryl hydrocarbon receptor-dependent metabolism plays a significant role in estrogen-like effects of polycyclic aromatic hydrocarbons on cell proliferation. *Toxicol Sci.* 2018, 165, 447-461.

Tylichová Z, Slavík J, Ciganek M, Ovesná P, Krčmář P, Straková N, Machala M, Kozubík A, Hofmanová J, Vondráček J. Butyrate and docosahexaenoic acid interact in alterations of specific lipid classes in differentiating colon cancer cells. *J Cell Biochem.* 2018, 119, 4664-4679.

Zapletal O, Tylichová Z, Neča J, Kohoutek J, Machala M, Milcová A, Pokorná M, Topinka J, Moyer MP, Hofmanová J, Kozubík A, Vondráček J. Butyrate alters expression of cytochrome P450 1A1 and metabolism of benzo[a]pyrene via its histone deacetylase activity in colon epithelial cell models. *Arch Toxicol.* 2017, 91, 2135-2150.

Vondráček J, Pěničková K, Neča J, Ciganek M, Grycová A, Dvořák Z, Machala M. Assessment of the aryl hydrocarbon receptor-mediated activities of polycyclic aromatic hydrocarbons in a human cell-based reporter gene assay. *Environ Pollut.* 2017, 220(Pt A), 307-316.

Pierucci F, Frati A, Squecco R, Lenci E, Vicenti C, Slavík J, Francini F, Machala M, Meacci E. Non-dioxin-like organic toxicant PCB153 modulates sphingolipid metabolism in liver progenitor cells: its role in Cx43-formed gap junction impairment. *Arch Toxicol.* 2017, 91, 749-760.

Líbalová H, Rössner P, Vrbová K, Brzicová T, Sikorová J, Vojtíšek-Lom M, Beránek V, Kléma J, Ciganek M, Neča J, Pěničková K, Machala M, Topinka J. Comparative analysis of toxic responses of organic extracts from diesel and selected alternative fuels engine emissions in human lung BEAS-2B cells. *Int J Mol Sci.* 2016, 17, 1833. doi: 10.3390/ijms17111833.

Rössner P, Strapáčová S, Štolcpartová J, Schmuezerová J, Milcová A, Neča J, Vlková V, Brzicová T, Machala M, Topinka J. Toxic effects of the major components of diesel exhaust in human alveolar basal epithelial cells (A549). *Int J Mol Sci.* 2016, 17, 1393. doi: 10.3390/ijms17091393.

Vondráček J, Machala M. Environmental ligands of the aryl hydrocarbon receptor and their effects in models of adult liver progenitor cells. *Stem Cells Int.* 2016, 2016:4326194. doi: 10.1155/2016/4326194.

Hofmanová J, Slavík J, Ovesná P, Tylichová Z, Vondráček J, Straková N, Vaculová AH, Ciganek M, Kozubík A, Knopfová L, Šmarda J, Machala M. Dietary fatty acids specifically modulate phospholipid pattern in colon cells with distinct differentiation capacities. *Eur J Nutr.* 2017, 56, 1493-1508. doi: 10.1007/s00394-016-1196-y.

Brenerová P, Hamers T, Kamstra JH, Vondráček J, Strapáčová S, Andersson PL, Machala M. Pure non-dioxin-like PCB congeners suppress induction of AhR-dependent endpoints in rat liver cells. *Environ Sci Pollut Res Int.* 2016, 23, 2099-2107.

Svobodová J, Kabátková M, Šmerdová L, Brenerová P, Dvořák Z, Machala M, Vondráček J. The aryl hydrocarbon receptor-dependent disruption of contact inhibition in rat liver WB-F344 epithelial cells is linked with induction of survivin, but not with inhibition of apoptosis. *Toxicology* 2015, 333, 37-44.

Kabátková M, Zapletal O, Tylichová Z, Neča J, Machala M, Milcová A, Topinka J, Kozubík A, Vondráček J. Inhibition of  $\beta$ -catenin signalling promotes DNA damage elicited by benzo[a]pyrene in a model of human colon cancer cells via CYP1 deregulation. *Mutagenesis* 2015, 30, 565-576.

Larsson M, van den Berg M, Brenerová P, van Duursen MB, van Ede KI, Lohr C, Luecke-Johansson S, Machala M, Nesper S, Pěňčíková K, Poellinger L, Schrenk D, Strapáčová S, Vondráček J, Andersson PL. Consensus toxicity factors for polychlorinated dibenzo-p-dioxins, dibenzofurans, and biphenyls combining in silico models and extensive in vitro screening of AhR-mediated effects in human and rodent cells. *Chem Res Toxicol.* 2015, 28, 641-650.

Topinka J, Rossner P Jr, Milcová A, Schmuczerová J, Pěňčíková K, Rossnerová A, Ambrož A, Štolcpartová J, Bendl J, Hovorka J, Machala M. Day-to-day variability of toxic events induced by organic compounds bound to size segregated atmospheric aerosol. *Environ Pollut.* 2015, 202, 135-145.

Pálková L, Vondráček J, Trilecová L, Ciganek M, Pěňčíková K, Neča J, Milcová A, Topinka J, Machala M. The aryl hydrocarbon receptor-mediated and genotoxic effects of fractionated extract of standard reference diesel exhaust particle material in pulmonary, liver and prostate cells. *Toxicol In Vitro* 2015, 29;438-448.

Kabátková M, Svobodová J, Pěňčíková K, Mohatad DS, Šmerdová L, Kozubík A, Machala M, Vondráček J. Interactive effects of inflammatory cytokine and abundant low-molecular-weight PAHs on inhibition of gap junctional intercellular communication, disruption of cell proliferation control, and the AhR-dependent transcription. *Toxicol Lett.* 2015, 232, 113-121.

Líbalová H, Krčková S, Uhlířová K, Kléma J, Ciganek M, Rössner P, Jr, Šrám RJ, Vondráček J, Machala M, Topinka J. Analysis of gene expression changes in A549 cells induced by organic compounds from respirable air particles. *Mutat Res.* 2014, 770, 94-105.

Hrubá E, Pernicová Z, Pálková L, Souček K, Vondráček J, Machala M. Phthalates deregulate cell proliferation, but not neuroendocrine transdifferentiation, in human LNCaP prostate cancer cell model. *Folia Biol (Praha)* 2014, 60 (Suppl 1), 56-61.

Šmerdová L, Kabátková M, Kohoutek J, Blažek D, Machala M, Vondráček J. Upregulation of CYP1B1 expression by inflammatory cytokines is mediated by the p38 MAP kinase signal transduction pathway. *Carcinogenesis.* 2014, 35, 2534-2543.

Skender B, Hofmanová J, Slavík J, Jelínková I, Machala M, Moyer MP, Kozubík A, Hyršlová Vaculová A. DHA-mediated enhancement of TRAIL-induced apoptosis in colon cancer cells

is associated with engagement of mitochondria and specific alterations in sphingolipid metabolism. *Biochim Biophys Acta*. 2014, 1841, 1308-17. doi: 10.1016/j.bbalip.2014.06.005.

Ghorbanzadeh M, van Ede KI, Larsson M, van Duursen MB, Poellinger L, Lücke-Johansson S, Machala M, Pěňčíková K, Vondráček J, van den Berg M, Denison MS, Ringsted T, Andersson PL. In vitro and in silico derived relative effect potencies of Ah-receptor-mediated effects by PCDD/Fs and PCBs in rat, mouse, and guinea pig CALUX cell lines. *Chem Res Toxicol*. 2014, 27, 1120-1132.

Ghossoub R, Lembo F, Rubio A, Gaillard CB, Bouchet J, Vitale N, Slavík J, Machala M, Zimmermann P. Syntenin-ALIX exosome biogenesis and budding into multivesicular bodies are controlled by ARF6 and PLD2. *Nat Commun* 2014, 5:3477. doi: 10.1038/ncomms4477.

Líbalová H, Krčková S, Uhlířová K, Milcová A, Schmuczerová J, Ciganek M, Kléma J, Machala M, Šrám RJ, Topinka J. Genotoxicity but not the AhR-mediated activity of PAHs is inhibited by other components of complex mixtures of ambient air pollutants. *Toxicol Lett*. 2014, 225, 350-357.

Kříž V, Pospíchalová V, Mašek J, Kilander MB, Slavík J, Tanneberger K, Schulte G, Machala M, Kozubík A, Behrens J, Bryja V.  $\beta$ -arrestin promotes Wnt-induced low density lipoprotein receptor-related protein 6 (Lrp6) phosphorylation via increased membrane recruitment of Amer1 protein. *J Biol Chem* 2014, 289, 1128-1141.

Šmerdová L, Neča J, Svobodová J, Topinka J, Schmuczerová J, Kozubík A, Machala M, Vondráček J. Inflammatory mediators accelerate metabolism of benzo[a]pyrene in rat alveolar type II cells: the role of enhanced cytochrome P450 1B1 expression. *Toxicology* 2013, 314, 30-38.

Procházková J, Kabátková M, Šmerdová L, Pacherník J, Sykorová D, Kohoutek J, Šimečková P, Hrubá E, Kozubík A, Machala M, Vondráček J. Aryl hydrocarbon receptor negatively regulates expression of the plakoglobin gene (*jup*). *Toxicol Sci*. 2013, 134, 258-270.

Lauby-Secretan B, Loomis D, Grosse Y, El Ghissassi F, Bouvard V, Benbrahim-Tallaa L, Guha N, Baan R, Mattock H, Straif K; WHO International Agency for Research on Cancer. Carcinogenicity of polychlorinated biphenyls and polybrominated biphenyls. *Lancet Oncol*. 2013, 14, 287-288. doi: 10.1016/S1470-2045(13)70104-9.

Faust D, Vondráček J, Krčmář P, Smerdová L, Procházková J, Hrubá E, Hulinková P, Kaina B, Dietrich C, Machala M. AhR-mediated changes in global gene expression in rat liver progenitor cells. *Arch Toxicol*. 2013, 87, 681-698.

Andrysík Z, Procházková J, Kabátková M, Umannová L, Simečková P, Kohoutek J, Kozubík A, Machala M, Vondráček J. Aryl hydrocarbon receptor-mediated disruption of contact inhibition is associated with connexin43 downregulation and inhibition of gap junctional intercellular communication. *Arch Toxicol*. 2013, 87, 491-503.

Staršířchová A, Hrubá E, Slabáková E, Pernicová Z, Procházková J, Pěňčíková K,

Seda V, Kabátková M, Vondráček J, Kozubík A, Machala M, Souček K. TGF- $\beta$ 1 signaling plays a dominant role in the crosstalk between TGF- $\beta$ 1 and the aryl hydrocarbon receptor ligand in prostate epithelial cells. *Cell Signal*. 2012, 24, 1665-1676.

Lübcke-von Varel U, Bataineh M, Lohrmann S, Löffler I, Schulze T, Flückiger-Isler S, Neca J, Machala M, Brack W. Identification and quantitative confirmation of dinitropyrenes and 3-nitrobenzanthrone as major mutagens in contaminated sediments. *Environ Int*. 2012, 44, 31-39.

Valovičová Z, Mesárošová M, Trilecová L, Hrubá E, Marvanová S, Krčmář P, Milcová A, Schmuczerová J, Vondráček J, Machala M, Topinka J, Gábelová A. Genotoxicity of 7H-dibenzo[c,g]carbazole and its methyl derivatives in human keratinocytes. *Mutat Res*. 2012, 743, 91-98.

Líbalová H, Uhlířová K, Kléma J, Machala M, Šrám RJ, Ciganek M, Topinka J. Global gene expression changes in human embryonic lung fibroblasts induced by organic extracts from respirable air particles. *Part Fibre Toxicol*. 2012, 9:1. doi: 10.1186/1743-8977-9-1.

Hofmanová J, Ciganek M, Slavík J, Kozubík A, Stixová L, Vaculová A, Dušek L, Machala M. Lipid alterations in human colon epithelial cells induced to differentiation and/or apoptosis by butyrate and polyunsaturated fatty acids. *J Nutr Biochem*. 2012, 23, 539-548. doi: 10.1016/j.jnutbio.2011.02.010.

Lauby-Secretan B, Baan R, Grosse Y, El Ghissassi F, Bouvard V, Benbrahim-Tallaa L, Guha N, Galichet L, Straif K; WHO International Agency for Research on Cancer Monograph Working Group. Bitumens and bitumen emissions, and some heterocyclic polycyclic aromatic hydrocarbons. *Lancet Oncol*. 2011, 12, 1190-1191. doi: 10.1016/s1470-2045(11)70359-x.

Stenberg M, Hamers T, Machala M, Fonnum F, Stenius U, Laury AA, van Duursen MB, Westerink RH, Fernandes EC, Andersson PL. Multivariate toxicity profiles and QSAR modeling of non-dioxin-like PCBs—an investigation of in vitro screening data from ultra-pure congeners. *Chemosphere*. 2011, 85, 1423-1429.

Gábelová A, Valovičová Z, Mesárošová M, Trilecová L, Hrubá E, Marvanová S, Krčmář P, Milcová A, Schmuczerová J, Vondráček J, Machala M, Topinka J. Genotoxicity of 7H-dibenzo[c,g]carbazole and its tissue-specific derivatives in human hepatoma HepG2 cells is related to CYP1A1/1A2 expression. *Environ Mol Mutagen*. 2011, 52, 636-645.

Hrubá E, Vondráček J, Líbalová H, Topinka J, Bryja V, Souček K, Machala M. Gene expression changes in human prostate carcinoma cells exposed to genotoxic and nongenotoxic aryl hydrocarbon receptor ligands. *Toxicol Lett*. 2011, 206, 178-188.

Andrysík Z, Vondráček J, Marvanová S, Ciganek M, Neča J, Pěničková K, Mahadevan B, Topinka J, Baird WM, Kozubík A, Machala M. Activation of the aryl hydrocarbon receptor is the major toxic mode of action of an organic extract of a reference urban dust particulate matter mixture: the role of polycyclic aromatic hydrocarbons. *Mutat Res*. 2011, 714, 53-62.

Umánová L, Machala M, Topinka J, Schmuczerová J, Krčmář P, Neča J, Šujanová K, Kozubík A, Vondráček J. Benzo[a]pyrene and tumor necrosis factor- $\alpha$  coordinately increase

genotoxic damage and the production of proinflammatory mediators in alveolar epithelial type II cells. *Toxicol Lett.* 2011, 206, 21-129.

Pernicová Z, Slabáková E, Kharaihvili G, Bouchal J, Král M, Kunická Z, Machala M, Kozubík A, Souček K. Androgen depletion induces senescence in prostate cancer cells through down-regulation of Skp2. *Neoplasia.* 2011, 13, 526-536.

Trilecová L, Krčková S, Marvanová S, Pěničková K, Krčmář P, Neča J, Hulinková P, Pálková L, Ciganek M, Milcová A, Topinka J, Vondráček J, Machala M. Toxic effects of methylated benzo[a]pyrenes in rat liver stem-like cells. *Chem Res Toxicol.* 2011, 24, 866-876.

Procházková J, Kabátková M, Bryja V, Umannová L, Bernatík O, Kozubík A, Machala M, Vondráček J. The interplay of the aryl hydrocarbon receptor and  $\beta$ -catenin alters both AhR-dependent transcription and Wnt/ $\beta$ -catenin signaling in liver progenitors. *Toxicol Sci.* 2011, 122, 349-360.

Schmitt C, Vogt C, Machala M, de Deckere E. Sediment contact test with *Potamopyrgus antipodarum* in effect-directed analyses-challenges and opportunities. *Environ Sci Pollut Res Int.* 2011, 18, 1398-1404.

Vondráček J, Umannová L, Machala M. Interactions of the aryl hydrocarbon receptor with inflammatory mediators: beyond CYP1A regulation. *Curr Drug Metab.* 2011, 12, 89-103.

Hamers T, Kamstra JH, Cenijs PH, Pencikova K, Palkova L, Simeckova P, Vondracek J, Andersson PL, Stenberg M, Machala M. In vitro toxicity profiling of ultrapure non-dioxin-like polychlorinated biphenyl congeners and their relative toxic contribution to PCB mixtures in humans. *Toxicol Sci.* 2011, 121, 88-100.

Lübcke-von Varel U, Machala M, Ciganek M, Neca J, Pencikova K, Palkova L, Vondracek J, Löffler I, Streck G, Reifferscheid G, Flückiger-Isler S, Weiss JM, Lamoree M, Brack W. Polar compounds dominate in vitro effects of sediment extracts. *Environ Sci Technol.* 2011, 45, 2384-2390.

Procházková J, Kozubík A, Machala M, Vondráček J. Differential effects of indirubin and 2,3,7,8-tetrachlorodibenzo-p-dioxin on the aryl hydrocarbon receptor (AhR) signalling in liver progenitor cells. *Toxicology.* 2011, 279, 146-154.

Wenger M, Ondráčková M, Machala M, Neča J, Hyršl P, Šimková A, Jurajda P, von der Ohe P, Segner H. Assessing relationships between chemical exposure, parasite infection, fish health, and fish ecological status: a case study using chub (*Leuciscus cephalus*) in the Bílina River, Czech Republic. *Environ Toxicol Chem.* 2010, 29, 453-66. doi: 10.1002/etc.57.

Hrubá E, Trilecová L, Marvanová S, Krčmář P, Vykopalová L, Milcová A, Líbalová H, Topinka J, Staršíchová A, Souček K, Vondráček J, Machala M. Genotoxic polycyclic aromatic hydrocarbons fail to induce the p53-dependent DNA damage response, apoptosis or cell-cycle arrest in human prostate carcinoma LNCaP cells. *Toxicol Lett.* 2010, 197, 227-235. doi: 10.1016/j.toxlet.2010.06.004.

Vondráček J, Krčmář P, Procházková J, Trilecová L, Gavelová M, Skálová L,

Szotáková B, Buncek M, Radilová H, Kozubík A, Machala M. The role of aryl hydrocarbon receptor in regulation of enzymes involved in metabolic activation of polycyclic aromatic hydrocarbons in a model of rat liver progenitor cells. *Chem Biol Interact.* 2009, 180, 226-237. doi: 10.1016/j.cbi.2009.03.011.

Šimečková P, Vondráček J, Procházková J, Kozubík A, Krčmář P, Machala M. 2,2',4,4',5,5'-hexachlorobiphenyl (PCB 153) induces degradation of adherens junction proteins and inhibits beta-catenin-dependent transcription in liver epithelial cells. *Toxicology.* 2009, 260, 104-111. doi: 10.1016/j.tox.2009.03.014.

Lincová E, Hampl A, Pernicová Z, Staršichová A, Krčmář P, Machala M, Kozubík A, Souček K. Multiple defects in negative regulation of the PKB/Akt pathway sensitise human cancer cells to the antiproliferative effect of non-steroidal anti-inflammatory drugs. *Biochem Pharmacol.* 2009, 78, 561-572. doi: 10.1016/j.bcp.2009.05.001.

Valovičová Z, Marvanová S, Mészárosová M, Srančíková A, Trilecová L, Milcová A, Líbalová H, Vondráček J, Machala M, Topinka J, Gábelová A. Differences in DNA damage and repair produced by systemic, hepatocarcinogenic and sarcomagenic dibenzocarbazole derivatives in a model of rat liver progenitor cells. *Mutat Res.* 2009, 665, 51-60. doi: 10.1016/j.mrfmmm.2009.02.014.

Takáčová M, Holotnáková T, Vondráček J, Machala M, Pěnčíková K, Gradin K, Poellinger L, Pastorek J, Pastoreková S, Kopáček J. Role of aryl hydrocarbon receptor in modulation of the expression of the hypoxia marker carbonic anhydrase IX. *Biochem J.* 2009, 419, 419-425. doi: 10.1042/BJ20080952.

Šimečková P, Vondráček J, Andrysík Z, Zatloukalová J, Krčmář P, Kozubík A, Machala M. The 2,2',4,4',5,5'-hexachlorobiphenyl-enhanced degradation of connexin 43 involves both proteasomal and lysosomal activities. *Toxicol Sci.* 2009, 107, 9-18. doi: 10.1093/toxsci/kfn202.

Gavelová M, Hladíková J, Vildová L, Novotná R, Vondráček J, Krčmář P, Machala M, Skálová L. Reduction of doxorubicin and oracin and induction of carbonyl reductase in human breast carcinoma MCF-7 cells. *Chem Biol Interact.* 2008, 176, 9-18. doi: 10.1016/j.cbi.2008.07.011.

Kummer V, Mašková J, Zralý Z, Neča J, Šimečková P, Vondráček J, Machala M. Estrogenic activity of environmental polycyclic aromatic hydrocarbons in uterus of immature Wistar rats. *Toxicol Lett.* 2008, 180, 212-221. doi: 10.1016/j.toxlet.2008.06.862.

Machala M, Švihálková-Šindlerová L, Pěnčíková K, Krčmář P, Topinka J, Milcová A, Nováková Z, Kozubík A, Vondráček J. Effects of methylated chrysenes on AhR-dependent and -independent toxic events in rat liver epithelial cells. *Toxicology.* 2008, 247, 93-101. doi: 10.1016/j.tox.2008.02.008.

Umánová L, Neča J, Andrysík Z, Vondráček J, Upham BL, Trosko JE, Hofmanová J, Kozubík A, Machala M. Non-dioxin-like polychlorinated biphenyls induce a release of arachidonic acid in liver epithelial cells: a partial role of cytosolic phospholipase A(2) and extracellular signal-regulated kinases 1/2 signalling. *Toxicology.* 2008, 247, 55-60. doi: 10.1016/j.tox.2008.02.002.

Umannová L, Machala M, Topinka J, Nováková Z, Milcová A, Kozubík A, Vondráček J. Tumor necrosis factor-alpha potentiates genotoxic effects of benzo[a]pyrene in rat liver epithelial cells through upregulation of cytochrome P450 1B1 expression. *Mutat Res.* 2008, 640, 162-169. doi: 10.1016/j.mrfmmm.2008.02.001.

Upham BL, Bláha L, Babica P, Park JS, Sovadinová I, Pudrith C, Rummel AM, Weis LM, Sai K, Tithof PK, Guzvić M, Vondráček J, Machala M, Trosko JE. Tumor promoting properties of a cigarette smoke prevalent polycyclic aromatic hydrocarbon as indicated by the inhibition of gap junctional intercellular communication via phosphatidylcholine-specific phospholipase C. *Cancer Sci.* 2008, 99, 696-705. doi: 10.1111/j.1349-7006.2008.00752.x.

Brack W, Schmitt-Jansen M, Machala M, Brix R, Barceló D, Schymanski E, Streck G, Schulze T. How to confirm identified toxicants in effect-directed analysis. *Anal Bioanal Chem.* 2008, 390, 1959-1973. doi: 10.1007/s00216-007-1808-8.

Marvanová S, Vondráček J, Pěňčíková K, Trilecová L, Krčmář P, Topinka J, Nováková Z, Milcová A, Machala M. Toxic effects of methylated benz[a]anthracenes in liver cells. *Chem Res Toxicol.* 2008, 21, 503-512. doi: 10.1021/tx700305x.

Topinka J, Marvanová S, Vondráček J, Sevastyanova O, Nováková Z, Krčmář P, Pěňčíková K, Machala M. DNA adducts formation and induction of apoptosis in rat liver epithelial 'stem-like' cells exposed to carcinogenic polycyclic aromatic hydrocarbons. *Mutat Res.* 2008, 638, 122-132. doi: 10.1016/j.mrfmmm.2007.09.004.

Vondráček J, Švihálková-Šindlerová L, Pěňčíková K, Marvanová S, Krčmář P, Ciganek M, Neča J, Trosko JE, Upham B, Kozubík A, Machala M. Concentrations of methylated naphthalenes, anthracenes, and phenanthrenes occurring in Czech river sediments and their effects on toxic events associated with carcinogenesis in rat liver cell lines. *Environ Toxicol Chem.* 2007, 26, 2308-2316. doi: 10.1897/07-161R.1.

Umannová L, Zatloukalová J, Machala M, Krčmář P, Májková Z, Hennig B, Kozubík A, Vondráček J. Tumor necrosis factor-alpha modulates effects of aryl hydrocarbon receptor ligands on cell proliferation and expression of cytochrome P450 enzymes in rat liver "stem-like" cells. *Toxicol Sci.* 2007, 99, 79-89. doi: 10.1093/toxsci/kfm149.

Procházka L, Turánek J, Tesařík R, Knotigová P, Polášková P, Andrysík Z, Kozubík A, Žák F, Sova P, Neužil J, Machala M. Apoptosis and inhibition of gap-junctional intercellular communication induced by LA-12, a novel hydrophobic platinum(IV) complex. *Arch Biochem Biophys.* 2007, 462, 54-61. doi: 10.1016/j.abb.2007.03.021.

Zatloukalová J, Švihálková-Šindlerová L, Kozubík A, Krčmář P, Machala M, Vondráček J. beta-Naphthoflavone and 3'-methoxy-4'-nitroflavone exert ambiguous effects on Ah receptor-dependent cell proliferation and gene expression in rat liver 'stem-like' cells. *Biochem Pharmacol.* 2007, 73, 1622-1634. doi: 10.1016/j.bcp.2007.01.032.

Švihálková-Šindlerová L, Machala M, Pěňčíková K, Marvanová S, Neča J, Topinka J, Sevastyanova O, Kozubík A, Vondráček J. Dibenzanthracenes and benzo[a]chrysenes elicit both genotoxic and nongenotoxic events in rat liver 'stem-like' cells. *Toxicology.* 2007, 232, 147-159. doi: 10.1016/j.tox.2006.12.024.

Andrysík Z, Vondráček J, Machala M, Krčmář P, Švihálková-Šindlerová L, Kranz A, Weiss C, Faust D, Kozubík A, Dietrich C. The aryl hydrocarbon receptor-dependent deregulation of cell cycle control induced by polycyclic aromatic hydrocarbons in rat liver epithelial cells. *Mutat Res.* 2007, 615, 87-97. doi: 10.1016/j.mrfmmm.2006.10.004.

Vondráček J, Švihálková-Šindlerová L, Pěničková K, Krčmář P, Andrysík Z, Chramostová K, Marvanová S, Valovičová Z, Kozubík A, Gábelová A, Machala M. 7H-Dibenzo[c,g]carbazole and 5,9-dimethyldibenzo[c,g]carbazole exert multiple toxic events contributing to tumor promotion in rat liver epithelial 'stem-like' cells. *Mutat Res.* 2006, 596, 43-56. doi: 10.1016/j.mrfmmm.2005.11.005.

Andrysík Z, Machala M, Chramostová K, Hofmanová J, Kozubík A, Vondráček J. Activation of ERK1/2 and p38 kinases by polycyclic aromatic hydrocarbons in rat liver epithelial cells is associated with induction of apoptosis. *Toxicol Appl Pharmacol.* 2006, 211, 198-208. doi: 10.1016/j.taap.2005.06.007.

Plíšková M, Vondráček J, Křen V, Gazák R, Sedmera P, Walterová D, Psotová J, Šimánek V, Machala M. Effects of silymarin flavonolignans and synthetic silybin derivatives on estrogen and aryl hydrocarbon receptor activation. *Toxicology.* 2005, 215, 80-89. doi: 10.1016/j.tox.2005.06.020.

Plíšková M, Vondráček J, Canton RF, Neča J, Kočan A, Petřík J, Trnovec T, Sanderson T, van den Berg M, Machala M. Impact of polychlorinated biphenyls contamination on estrogenic activity in human male serum. *Environ Health Perspect.* 2005, 113, 1277-1284. doi: 10.1289/ehp.7745.

Forejtníková H, Lunerová K, Kubínová R, Jankovská D, Marek R, Kareš R, Suchý V, Vondráček J, Machala M. Chemoprotective and toxic potentials of synthetic and natural chalcones and dihydrochalcones in vitro. *Toxicology.* 2005, 208, 81-93. doi: 10.1016/j.tox.2004.11.011.

Plíšková M, Vondráček J, Vojtěšek B, Kozubík A, Machala M. Deregulation of cell proliferation by polycyclic aromatic hydrocarbons in human breast carcinoma MCF-7 cells reflects both genotoxic and nongenotoxic events. *Toxicol Sci.* 2005, 83, 246-256. doi: 10.1093/toxsci/kfi040.

Vondráček J, Machala M, Bryja V, Chramostová K, Krčmář P, Dietrich C, Hampl A, Kozubík A. Aryl hydrocarbon receptor-activating polychlorinated biphenyls and their hydroxylated metabolites induce cell proliferation in contact-inhibited rat liver epithelial cells. *Toxicol Sci.* 2005, 83, 53-63. doi: 10.1093/toxsci/kfi009.

Ciganek M, Neča J, Adamec V, Janošek J, Machala M. A combined chemical and bioassay analysis of traffic-emitted polycyclic aromatic hydrocarbons. *Sci Total Environ.* 2004, 334-335, 141-148. doi: 10.1016/j.scitotenv.2004.04.034.

Vondráček J, Chramostová K, Plíšková M, Bláha L, Brack W, Kozubík A, Machala M. Induction of aryl hydrocarbon receptor-mediated and estrogen receptor-mediated activities, and modulation of cell proliferation by dinaphthofurans. *Environ Toxicol Chem.* 2004, 23, 2214-2220. doi: 10.1897/03-620.

Chramostová K, Vondráček J, Šindlerová L, Vojtěšek B, Kozubík A, Machala M. Polycyclic aromatic hydrocarbons modulate cell proliferation in rat hepatic epithelial stem-like WB-F344 cells. *Toxicol Appl Pharmacol*. 2004, 196, 136-148. doi: 10.1016/j.taap.2003.12.008.

Machala M, Bláha L, Lehmler HJ, Plíšková M, Májková Z, Kapplová P, Sovadinová I, Vondráček J, Malmberg T, Robertson LW. Toxicity of hydroxylated and quinoid PCB metabolites: inhibition of gap junctional intercellular communication and activation of aryl hydrocarbon and estrogen receptors in hepatic and mammary cells. *Chem Res Toxicol*. 2004, 17, 340-347. doi: 10.1021/tx030034v.

Szotáková B, Baliharová V, Lamka J, Nozinová E, Wsól V, Velík J, Machala M, Neča J, Souček P, Susová S, Skálová L. Comparison of in vitro activities of biotransformation enzymes in pig, cattle, goat and sheep. *Res Vet Sci*. 2004, 76, 43-51. doi: 10.1016/s0034-5288(03)00143-7.

Machala M, Bláha L, Vondráček J, Trosko JE, Scott J, Upham BL. Inhibition of gap junctional intercellular communication by noncoplanar polychlorinated biphenyls: inhibitory potencies and screening for potential mode(s) of action. *Toxicol Sci*. 2003, 76, 102-111. doi: 10.1093/toxsci/kfg209.

Machala M, Souček P, Neča J, Ulrich R, Lamka J, Szotáková B, Skálová L. Inter-species comparisons of hepatic cytochrome P450 enzyme levels in male ruminants. *Arch Toxicol*. 2003, 77, 555-560. doi: 10.1007/s00204-003-0477-4.

Vondráček J, Kozubík A, Machala M. Modulation of estrogen receptor-dependent reporter construct activation and G0/G1-S-phase transition by polycyclic aromatic hydrocarbons in human breast carcinoma MCF-7 cells. *Toxicol Sci*. 2002, 70, 193-201. doi: 10.1093/toxsci/70.2.193.

Sovak M, Seligson AL, Konas M, Hajduch M, Dolezal M, Machala M, Nagourney R. Herbal composition PC-SPES for management of prostate cancer: identification of active principles. *J Natl Cancer Inst*. 2002, 94, 1275-1281. doi: 10.1093/jnci/94.17.1275.

Giesy JP, Hilscherová K, Jones PD, Kannan K, Machala M. Cell bioassays for detection of aryl hydrocarbon (AhR) and estrogen receptor (ER) mediated activity in environmental samples. *Mar Pollut Bull*. 2002 45, 3-16. doi: 10.1016/s0025-326x(02)00097-8.

Bláha L, Kapplová P, Vondráček J, Upham B, Machala M. Inhibition of gap-junctional intercellular communication by environmentally occurring polycyclic aromatic hydrocarbons. *Toxicol Sci*. 2002, 65, 43-51. doi: 10.1093/toxsci/65.1.43.

Hilscherová K, Kannan K, Kang YS, Holoubek I, Machala M, Masunaga S, Nakanishi J, Giesy JP. Characterization of dioxin-like activity of sediments from a Czech river basin. *Environ Toxicol Chem*. 2001, 20, 2768-2777.

Machala M, Ciganek M, Bláha L, Minksová K, Vondráček J. Aryl hydrocarbon receptor-mediated and estrogenic activities of oxygenated polycyclic aromatic hydrocarbons and azaarenes originally identified in extracts of river sediments. *Environ Toxicol Chem*. 2001, 20, 2736-2743.

Machala M, Vondráček J, Bláha L, Ciganek M, Neča J. Aryl hydrocarbon receptor-mediated activity of mutagenic polycyclic aromatic hydrocarbons determined using in vitro reporter gene assay. *Mutat Res.* 2001, 497, 49-62. doi: 10.1016/s1383-5718(01)00240-6.

Skálová L, Szotáková B, Machala M, Neca J, Soucek P, Havlasová J, Wsól V, Krídová L, Kvasnicková E, Lamka J. Effect of ivermectin on activities of cytochrome P450 isoenzymes in mouflon (*Ovis musimon*) and fallow deer (*Dama dama*). *Chem Biol Interact.* 2001, 137, 155-167. doi: 10.1016/s0009-2797(01)00227-7.

Vondráček J, Machala M, Minksová K, Bláha L, Murk AJ, Kozubík A, Hofmanová J, Hilscherová K, Ulrich R, Ciganek M, Neča J, Svrčková D, Holoubek I. Monitoring river sediments contaminated predominantly with polyaromatic hydrocarbons by chemical and in vitro bioassay techniques. *Environ Toxicol Chem.* 2001, 20, 1499-1506.

Machala M, Dušek L, Hilscherová K, Kubínová R, Jurajda P, Neča J, Ulrich R, Gelnar M, Studničková Z, Holoubek I. Determination and multivariate statistical analysis of biochemical responses to environmental contaminants in feral freshwater fish *Leuciscus cephalus*, L. *Environ Toxicol Chem.* 2001, 20, 1141-1148.

Machala M, Kubínová R, Horavová P, Suchý V. Chemoprotective potentials of homoisoflavonoids and chalcones of *Dracaena cinnabari*: modulations of drug-metabolizing enzymes and antioxidant activity. *Phytother Res.* 2001, 15, 114-118. doi: 10.1002/ptr.697.

Kubínová R, Machala M, Minksová K, Neca J, Suchý V. Chemoprotective activity of boldine: modulation of drug-metabolizing enzymes. *Pharmazie.* 2001, 56, 242-243.

Bláha L, Machala M, Vondráček J, Breineková K. Multiple oxidative stress parameters are modulated in vitro by oxygenated polycyclic aromatic hydrocarbons identified in river sediments. *Adv Exp Med Biol.* 2001, 500, 225-228. doi: 10.1007/978-1-4615-0667-6\_32.