

The Slovak Republic:

Monitoring activities in humans, using biomarkers, that focus on an environmental exposure, diseases and/or disorders and genetic susceptibility

Participant	Name of project/study	Funded by	Date enter-exit	Biomarker	Matrix	Specification according to groups and areas
Slovak Medical University	Xenobiotics as possible cause of allergy	Ministry of Health SR	1996-1999	Pb, Cd, and total Hg	placenta	400 samples
Contact: Dr. Reichrtova E.						8 areas of Slovakia
Slovak Medical University	Risks of exposure and toxic effects in humans	Ministry of Health SR	1997- 2000	Pb, Cd, and total Hg	cord blood, venous blood, maternal milk	maternal milk - 170 samples, cord blood - 386 samples, venous blood -263 samples of children (age 1 year)
Contact: Ursinyova M.						8 areas of Slovakia
Slovak Medical University	Epidemic investigation of allergic disease among children in the Slovak Republic	Project of Slovak-American cooperation G/147/98	1998-2000	Pb, Cd, Hg	placenta	400 twinnings mothers and children
Contact: Reichrtova E.						8 areas of Slovakia
Slovak Medical University	Neurobehavioral development of children living in differently polluted areas of Slovakia	Ministry of Environment SR	1995-1997	Pb	venous blood	264 children
Contact: Sovcikova E.						3 areas of Slovakia
Slovak Medical University	Long-term Lead exposure and its neurotoxic effects in children in the Slovak Republic	Ministry of Environment SR	1997	Pb	venous blood	200 children
Contact: Sovcikova E.						2 areas of Slovakia

Slovak Medical University	Biological monitoring of persistent chemicals and their effect on the health state of the selected groups of inhabitants of Slovakia	Ministry of Health SR	1995	Pb, Cd, Hg Pb	urine, venous blood	400 children (age 10 - 12 years)
Contact: Uhnak J.						4 areas of Slovakia
Slovak Medical University	Alternative nutrition and metabolic effects related to the risk factors and protective nutritional factors	Ministry of Health SR	1997-1998	Pb, Cd, Hg	blood	250 volunteers, 2 nutritional groups: children (age 11- 14 years) adolescents adults
Contact: Kudlackova M.						
Slovak Medical University	Seasonal dietary antioxidant levels in relation to human health	Project Copernicus IC15CT961012	1997-2000	Pb, Cd, Hg, Zn, Cu, Se	blood	120 volunteers (age over 50 years) after hearth attack and control group
Contact: Dusinska M.						
Slovak Medical University	Placental uptake and transfer of environmental chemicals relating to allergy in childhood years.	PLUTOCRACY	2001-2005	Pb, Cd immunological parameters	placenta cord blood	200 samples of placenta per area 200 samples of cord blood per area
Contact: Palkovicova L.						6 areas in Europe
Slovak Medical University	Relationship between the levels of toxic and essential elements and allergic diseases in children	project APVT-21-025602	2002-2005	Pb, Cd, Hg and trace metals immunological parameters	blood	300 samples of blood from children This is the follow-up project of the former project in volunteers
Contact: Ursinyova M.						8 areas of Slovakia
Slovak Medical University	Prenatal a postnatal exposure to xenobiotics and development of allergy in preschool children	project APVV-21-016504	2005 - 2008	Pb, Cd,Hg immunological parameters genetical polymorphism	placenta cord blood blood maternal milk	250 samples per matrix
Contact: Palkovicova L.						2 areas of Slovakia
Slovak Medical University	Study on the simultaneous impact of selected toxic elements and PCBs on hormonal levels of thyroid gland and neurobehav. development in children	Ministry of Health SR	2005 - this project was given for aproval	Pb, Cd, Hg PCBs parameters of neurobeh. development thyroid gland hormone	blood	150 twinings mothers and children
Contact: Ursinyova M.						2 areas of Slovakia

Slovak Medical University	Creutzfeldt-Jakob disease exogenic risk factors study in the area with higher prevalence of this disease	project APVT	2005-2008	Mn, Cu glycotype PrPsc tissue polymorphism type 129 PRNP	nervous tissue	
Contact: Slivarichova D.						2 areas of Slovakia
National Authority of Public Health Bratislava co-operators: RAPH Banska Bystrica RAPH Kosice RAPH Bratislava	Partial Monitoring System: Population exposure to environmental factors	Ministry of Health SR	1996 - 2000	Pb, Cd, Hg, Cr, Ni	blood hair urine adipose tissue liver kidney maternal milk	25 women and 25 men per area 30 children (age 10 years) per area 30 adolescents (age 16 years) per area
						12 areas of Slovakia, 24 sampling points
NAPH Bratislava RAPH Bratislava RAPH Prievidza SGI Bratislava	Health impact of geological factors on population in Horna Nitra area	SGI Bratislava	2004 - 2006	As, Hg, Cd, Pb	hair nails urine	200 school children
RAPH Banska Bystrica gestor	CINDI programe Countrywide Integrated Non-communicable Diseases Intervention Programme	Ministry of Health SR	1999 - 2005	cholesterol HDL LDL glucose triglycerides	blood	2000 people
Contact: Avdicova M.						
RAPH Banska Bystrica	The overall evaluation of the exposure to formaldehyde in children	Ministry of Health SR	1991 - 1992	% Ab.b., ceruloplasmine immunoglobulines transferine index orosomucoide prealbumine CSI, C3, C4, A1AT, AFT	blood	19 pre-school children 21 pre-school children (control group)
Contact: Slotova K.						3 areas of Slovakia

RAPH Banska Bystrica RAPH Prievidza	The health impact study of the polluted environment in the Novaky area	PHARE project EC/91/HEA/18	1992-1995	Ni, Rb, Sc, Fe, Hf, Hg, Ga, La, Na Pt, Sb, Sn, Ta, W, K, Ce, Co, Cs, Cd, Cr, Eu, Ag, As, Au, Br, Ba, Se, Zn, In	hair	39 children of 3 polluted areas 23 children of control group
	Part II: Study in workers		1992 - 1995	total As, inorganic As As metabolites - MMA, DMA	urine	workers of Power plant and Novak Chemical Works
Contact: Fabianova E.						4 areas of Slovakia
RAPH Banska Bystrica RAPH Prievidza	EPRI - Exposure to As and bioavailability of Arsenic metabolites Part I.	EPRI, P. A. California	1993 - 1996	creatinine, urine density total As, inorganic As As metabolites - MMA, DMA % Ab.b.,MN, SCE	urine hair nails blood	20 volunteers 3 areas of Slovakia
	Part II.		1997-1999	creatinine, urine density total As, inorganic As As metabolites - MMA, DMA % Ab.b.,MN, SCE	urine blood* blood	20 volunteers * done in USA 3 areas of Slovakia
Contact: Fabianova E.						
RAPH Banska Bystrica RAPH Zilina RAPH Bratislava	CESAR Central European Study on air pollution and respiration Part I. Part II. Part III.	EU	1994 – 1997 1998	total lymphocytes, E196 Ly - CD markers, IM index lymphocytotransform. test deter. of antibodies to tetanus, diphtheria eosinophiles	blood mucous smear	21 school - 3038 children (age 7 -11 years) immunobiomarkers: 80 children (age 9 -10 years) validation study on atopy: 320 children (9 - 11 years)
Contact: Fabianova E.						4 areas of Slovakia
RAPH Banska Bystrica RAPH Levice RAPH Nove Zamky	Determination of As metabolites in urine	Ministry of Health SR	1999	total As, inorganic As As metabolites - MMA, DMA creatinine	urine	93 people
Contact: Koppova K., Miskovic P.						8 areas of Slovakia

RAPH Banska Bystrica RAPH Rimavska Sobota RAPH Roznava	Magnesite Mine health impact Assessment	Ministry of Health SR Own budget	1977 -	cytogenetic analyses of lymphocytes mutagenity	periph. blood urine	202 workers 107 workers
						Jelsava area
RAPH Roznava RAPH Kosice RHS Ostrava	Cancer Risk Assessment in workers of Metal Mines	Ministry of Health SR Own budget	1987 - 1994	cytogenetic analyses of lymphocytes mutagenity	periph. blood urine	103 workers
						Roznava area
RAPH Velky Krtis RAPH Banska Bystrica RAPH Liptovsky Mikulas RAPH Cadca	Exposure to PCBs via soil, water and food chain	Ministry of Health SR	1990 1986 - 1991 2001 - 2002	PCBs PCBs PCBs, heavy metals	maternal milk	52 women 5 women per year 9 women
						3 areas of Slovakia
RAPH Kosice	Analysis of polluted factors impact on workers health in U.S. Steel Kosice - DZ coking plant	NCI USA	2002 -2008	cytogenetic analyses of lymphocytes mutagenity	periph. blood urine	in subsample of 2814 workers (age 15 - 74 years)
						Kosice area
RAPH Kosice	Health impact Assessment from exposure to As and Sb in Zlata Idka area Part I. Part II.	Ministry of Health SR	2000 - 2003 2004 - 2006	As, Sb	blood, urine, hair, nails blood, urine	117 inhabitants (age 10 - 100 years) 24 inhabitants (age 21 - 77 years)
						2 areas of Slovakia
RAPH Kosice	Health impact Assessment of garbage disposal plant/incinerator in Kosice	National Health Promotion Programme	2004 - 2006	As, Sb, Hg, Cd, Pb, Mn, Cu, PAU NOx, CO, SO2, dust, HCl	blood, urine, hair	240 inhabitants (age 10 - 73 years)
						Kosice area
RAPH Prievidza	Vinylchlorid and Cancer Risk in Novak Chemical Works	Novak Chemical works	2003 -	VCM cytogenetic analyses of lymphocytes	blood	1200 workers and inhabitants of Novaky and Zemlianske Kostolany areas
RAPH Prievidza	Environmental Impact on children Health	Ministry of Health SR	1991 - 1999	Hg, As	nails hair	400 children
						Prievidza area

RAPH Galanta	Health impact of environmental factors on population in Galanta area	Ministry of Health SR	1996 - 1998	Er, Hb, HTC, Fe, As, Cd, Hg, Pb, F total cholesterol, HDL, Tg PCBs, γ HCH	blood	30 children 30 adolescents
			2000 - 2001	$\alpha+\beta+\gamma$ HCH, DDT, DDE, Pb, Cd, Cr, Ni, Hg, As, F, NO_3^-	maternal milk, hair urine, necrotic mater.	50 adults, primiparae
						Galanta area
RAPH Dolny Kubin	Determination of Heavy metals in children hair	Ministry of Health SR	1977 - 1995	Cd, Pb, Ni, Mn	hair	334 school children
						Dolny Kubin area
RAPH Dolny Kubin	Health impact of environmental factors	Ministry of Health SR	1995 - 1998	Pb, Cd, Hg	urine, blood	200 inhabitants
						TvrDOSIN and Namestovo areas
RAPH Trebisov Slovak Medical University RAPH Humenne	PCBs in humans in selected polluted areas in Slovakia	Ministry of Health SR	1994	PCBs	adipose tissue	patients
			1979-1999		maternal milk	primiparae
			1986-1993		urine	workers exposed to dilyn
						4 areas of Slovakia
RAPH Spisska Nova Ves	Food contaminants study and health impact of the polluted environment on children	Ministry of Health SR	1994-1997	PCBs, HCB, HCH, DDT	maternal milk	58 samples of maternal milk
			2000-2001	Pb, Hg, Cd heavy metals	blood, hair, urine	79 school children 40 workers
						2 areas of Slovakia
Slovak Medical University	Exposure to Dioxins, PCBs, selected Pesticides and PBDE in inhabitants of Slovakia	Ministry of Health SR	2006-2008	PCDD/F, PBDE, PCB, HCB, p,p'-DDE, p,p'-DDT	serum, maternal milk	women: serum - 115 samples, maternal milk - 70 samples men: serum - 115 samples
						5 areas of Slovakia
Slovak Medical University	Health impact of exposure to PCBs and Dioxins on neurobehavioral and cognitive functions development of children	Ministry of Health SR	2006-2008	PCB, PCDD/F PCB PCB	serum, maternal milk serum serum	100 women and 100 children – newborns 500 children (age 3 years) 200 twinnings mothers and children
						Michalovce and Strazske areas

Slovak Medical University	Polychlorinated aromatic compounds in the human population of the Slovak Republic	Ministry of Environment SR	1998-2000	PCB	serum	300 twinnings mothers and children (age 6 months)
						2 areas of Slovakia
		Ministry of Health SR	1997-1999	PCB	serum	459 women and men (age over 18 years)
						2 areas of Slovakia
			1993-1995	PCDD/F, PCB, HCB,	serum, adipose tissue maternal milk	90 women and 169 men
						6 areas of Slovakia
Slovak Medical University	Heavy metals (Pb, Cu, Zn, Se) in pathogenesis of Attention deficit Hyperactivity Disorder	NIH Fogarty International Center	2004-2006	Cu, Zn, se, Pb	serum blood	30 children with ADHD 30 children of control group
Slovak Medical University	Crohn disease: Nutrition, immunopathological changes and oxidative stress	APVT-21-009502	2002-2005	Se	serum	100 patients with Crohn disease