

XXIII FOREWORD

I

METAL IONS AND SIGNALING PATHWAYS

- 1 Environmental arsenic as a disruptor of insulin signaling
PAUL D.S., DEVESA V., HERNANDEZ-ZAVALA A., ADAIR B.M., WALTON F.S., DROBNÁ Z., THOMAS D.J., STYBLO M. (USA)
- 8 Dual nature of intracellular zinc signaling
KHANOVA H., CIOCE L., DOYLE C., KORICHNEVA I. (USA)
- 15 Signaling pathways involved in cadmium-induced apoptosis and cytokine release in primary lung cells
LÅG M., REFSNES M., SCHWARZE P.E., HOLME J.A. (NORWAY)

II

METAL IONS AND HIP JOINT REPLACEMENT/BONE STRUCTURE

- 22 Cobalt deposition in mineralized bone matrix subsequent to hip joint replacement with CoCr implants
KATZER A., HAHN M., NIECKE M., JOBKE B., PÜSCHEL K., DELLING G., BUSSE B. (GERMANY AND USA)
- 27 The determination of cobalt and chromium in whole blood sampled from metal-metal and metal-polyethylene hip articulation patients by DRC-ICP-MS
WINSHIP P.D., FARIA N., SKINNER J.A., HART A.J., POWELL J.J. (UK)
- 34 Severe cobalt poisoning in endoprosthesis replacement of the hip
STEENS W., KATZER A. (GERMANY)
- 39 Accumulation of xenobiotics and biogenic elements in femora of yellow-necked mouse (*Apodemus flavicollis*) from different biotopes in relationship to bone structure
MARTINIÁKOVÁ M., OMEĽKA R., GROSSKOPF B., JANCOVÁ A., STAWARZ R., FORMICKI G., TOMAN R. (GERMANY, POLAND AND SLOVAK REPUBLIC)

III**SILICON**

- 45** Is there a biochemical role for silicon?
JUGDAOHSINGH R., KINRADE S.D., POWELL J.J.
- 56** There is no change in serum silicon levels during pregnancy
RATCLIFFE S., JUGDAOHSINGH R., ANDERSON S.H.C., LAKASING L., SRIPANYAKORN S., POWELL J.J. (UK)

IV**METAL IONS AND CANCER (I)****Metal ions and carcinogenesis**

- 63** Silencing of expression of the beta centaurin 2 and the FAD synthetase genes in nickel transformed C3H/10T1/2 cell lines
DESILVA A., VERMA R., LANDOLPH J.R. (USA)

Platinum and cancer

- 68** Structure and processing of major DNA intrastrand cross-link of anti-tumor oxaliplatin. The effect of sequence context and comparisons with cisplatin
BRABEC V., MALINA J., NOVAKOVA O., VOJTISKOVA M., NATILE G. (CZECH REPUBLIC AND ITALY)
- 75** Structure-activity relationships and DNA platination of new di- and tetracarboxylatoplatinum (IV) complexes
VALIAHDI S., REITHOFER M.R., EGGER A., JAKUPEC M.A., GALANSKI M., KEPPLER B.K. (AUSTRIA)
- 82** Neural damage in chick embryo brains exposed to platinum group metals
GAGNON Z.E., ISAAC L.A.C., NEWKIRK C. (USA)
- 88** Evaluation of a highly sensitive ICP-MS method for the determination of platinum in saliva of cancer patients treated with cisplatin
GORY-DELABAERE G., PEREZ J.L., CUPISSOL D., GATTACCECA F., BRÈS J. (FRANCE)
- 95** Synthesis, activity and binding with DNA of $\{trans\text{-PtCl}(\text{NH}_3)_2\}_2\{trans\text{-Pt}(3\text{-hydroxypyridine})_2(\text{H}_2\text{N}(\text{CH}_2)_4\text{NH}_2)_2\text{Cl}_4(\text{TH14})\}$
HUQ F., TAYYEM H., QING YU J., BEALE P. (AUSTRALIA)

Non-platinum anti-cancer drugs

- 100** Metal chemotherapeutic agents
THEOPHANIDES T., ANASTASSOPOULOU J. (GREECE)
- 104** *In vitro* antitumor activities of nitrosyl ruthenium complexes
GOLFETO C.C., VON POELHSITZ G., DO NASCIMENTO F.B., BATISTA A.A., SEIUSTRE-DE-ARAÚJO H.S., LANZMASTER M., TORRE M.H. (BRAZIL AND URUGUAY)

- 110** Synergistic antiproliferative effects of tris (8-quinolinolato)gallium(III) (KP46) in combination with platinum drugs in ovarian and colon carcinoma cells
JAKUPEC M.A., COLLERY P., KEPPLER B.K. (AUSTRIA AND FRANCE)
- 116** Antitumor activity of cobalt and copper oxindole derivatives
KANDILE N.G., HARDING D.R., MOHAMED M.I., ZAKY H.T., MAHMOUD H. (EGYPT AND NEW ZEALAND)
- 121** Antitumor activity of some novel cationic germanium and titanium metal based surfactants
MORSY S.M.I., BADAWI A.M., COLLERY P., BLASIAK J., JAITE J. (EGYPT, FRANCE AND POLAND)
- 129** Ruthenium compounds as potential novel cancer therapeutics. A characterization in yeast
ROSS J., SIEDE W. (USA)
- 135** Arsenic trioxide-mediated apoptosis in breast (MCF-7) and lung (A549) carcinoma cells
WALKER A.M., STEVENS J.J., TCHOUNWOU P.B. (USA)
- 140** Spectroscopic studies of the interaction between Cu-dipeptide complexes and calf thymus DNA in the research of antitumoral species
FACCHIN G., KREMER E., NASCIMENTO O.R., COSTA-FILHO A.J., ELLENA J., TORRE M.H. (URUGUAY AND BRAZIL)
- 146** Metal-based selenium cationic surfactants as antitumor agents
BADAWI A.M., COLLERY P., MEKAWI A.S., MOHAMED A.S., MOHAMED M.Z., KHOWDAIRY M.M. (EGYPT AND FRANCE)
- 153** Surface and antitumor activity of zinc cysteine surfactants
MORSY S.M.I., AZZAM E.M.S., BADAWI A.M. (EGYPT)
- 158** Copper (II)-surfactant complex and its nano analogue as potential antitumor agents
BADAWI A.M., ZAKHARY N.E., MORSY S.M.I., SABRY G.M., MOHAMED M.R., MOUSA A.M. (EGYPT)

V

MICRO-ORGANISMS AND INFECTION (I)

- 167** Isostructural replacement of zinc by cadmium in bacterial metallothionein
BLINDAUER C.A., HARRISON M.D., PARKINSON J.A., ROBINSON N.J., SADLER P.J. (UK AND AUSTRALIA)
- 174** Responses of four Campylobacterales to cadmium stress
KAAKOUSH N.O., MENDZ G.L. (AUSTRALIA)
- 180** Influence of culture conditions on *Rhodobacter capsulatus* PG sensitivity to copper ions
ZUBOVA S.V., IVANOV A.Y., PRORHORENKO I.R., KHAASSANOVA L.A., KHAASSANOVA Z.M., ETIENNE J.C., COLLERY P. (RUSSIA AND FRANCE)
- 185** Antimicrobial regulatory efficacy testing of solid copper alloy surfaces in the USA
MICHELS H.T., ANDERSON D.G. (USA)

- 191** Iron(III) reduction by microbial autoinducer molecules: oxidative degradation of a signal as a chemical interference in remote cell-cell communication
KAMNEV A.A., KOVÁCS K., KUZMANN E., KULIKOV L.A., PERFILIEV Y.D., BIRÓ B., VÉRTES A. (RUSSIA AND HUNGARY)
- 197** Synthesis and anti-*Mycobacterium tuberculosis* activity of vanadium complexes with N,N,O-donor ligands
MAIA DA S P.I., DEFLON V.M., PAVAN F.R., LEITE C.Q.F., GATTO C.C., LEMOS S.S., BATISTA A.A. (BRAZIL)
- 204** *Fuligo septica*, as a new model organism in studies on interaction between metal ions and living cells
LATOWSKI D., LESIAK A., JAROSZ-KRZEMIŃSKA E., STRZALKA K. (POLAND)

VI

BIOMOLECULAR STUDIES

- 210** Bone and cancer: a synchrotron micro-infrared study
ANASTASSOPOULOU J., KOLOVOU P., MAVROGENIS A. (GREECE)
- 214** Structural models for DNA bindings to biogenic and synthetic polyamine cations
TAJMIR-RIahi H.A., OUAMEUR A.A., N'SOUKPOÉ-KOSSI N., THOMAS T.J., THOMAS T. (CANADA AND USA)
- 223** Substitute effect on the aromaticity, structure and properties of arsa-benzene: study on as properties
MOLLAAMIN F., GHIASI R., MONAJJEMI M. (IRAN)
- 229** Synthesis and antiradical properties of dirhenium cluster compounds
SHTEMENKO A., GOLICHENKO A., TRETYAK S., SHTEMENKO N., RANDAREVICH M. (UKRAINE)
- 235** Mechanisms of heme oxygenase-1 induction by cobalt protoporphyrin and cobalt chloride
LOBODA A., JOZKOWICZ A., DULAK J. (POLAND)
- 242** Study of interaction passing Li⁺, Mg²⁺, Al³⁺ and Sn⁴⁺ in carbon nanotube (CNT): Monte Carlo simulation
MAHDAVIAN L., MONAJJEMI M. (IRAN)
- 247** Molecular Imprinted Polymer (MIP) for arsenic extraction from environmental water and biological samples
NABI J. (IRAN)
- 252** Molecular Imprinted Polymer (MIP) for nickel (II) extraction from environmental water and biological samples
KHAJEH M. (IRAN)
- 257** *Ab initio* study of the second virial coefficient drug-Na on the basis of intermolecular potential energy surface
NADERI F., MONAJJEMI M., YARI M. (IRAN)
- 264** An FT-IR and RAMAN study of Ca²⁺-timolol maleate complex
ANASTASSOPOULOU J., THEOPHANIDES T., EL HDIY A.A., ALIX A.J.P. (GREECE AND FRANCE)

- 269** A molecular study of copper ion complexes with the antioxidant taurine as ligand
KELLA S., ANASTASSOPOULOU J., THEOPHANIDES T. (GREECE)
- 274** Investigation of metal ion effects on nucleotide reductase and carbonic anhydrase in aspect of energy and dipole moment in different solvents and basis sets
HESHMAT M., MONAJEMI M. (IRAN)
- 280** Environmental study of mobility of arsenic ions through soil matrix under electrical current
LESZCZYNSKA D., AHMAD H. (USA)

VII

CELL STUDIES

- 285** Copper-induced cytotoxicity and transcriptional activation of stress genes in human liver carcinoma (HepG₂) cells
TCHOUNWOU P.B., NEWSOME C., WILLIAMS J., GLASS K. (USA)
- 291** Toxicity of lead and selenium on cultured cells from kidney and bone
MILGRAM S., CARRIÈRE M., SIMON A., GOUGET B. (FRANCE)
- 297** Chromosomal aberrations caused by Cu K-shell ionization in hypoxic cells containing Cu-ATSM
SHIMMI A., KAJI Y., KOBAYASHI K., USAMI N., MAEDA M., FUJIBAYASHI Y., FURUKAWA T., YUKAWA M., ISO H., ISHIKAWA T., TAKAKURA K. (JAPAN)
- 304** Ascorbate-mediated toxicity of hexavalent chromium in human cells
REYNOLDS M., ZHITKOVICH A. (USA)
- 310** Cytotoxicity of metal oxide nanoparticles and multiwalled carbon nanotubes to lung, kidney and liver cells
SIMON A., REYNAUD C., MAYNE M., HERLIN N., DESQUEYROUX H., GOUGET B., CARRIÈRE M. (FRANCE)
- 315** Expression of multidrug resistance P-glycoprotein Mdr1 (Abcb1) in rat kidney proximal tubules is up-regulated by nephrotoxic metals
SABOLIĆ I., BRELIJAK D., HERAK-KRAMBERGER C.M., LJUBOJEVIĆ M., THÉVENOD F. (CROATIA AND GERMANY)
- 322** Analysis of intracellular NADH level in the HepG2 cells and its relation with cellular energy level and cell death following acute cadmium exposure
YANG M.S., LIN T., LI D., QU J.Y. (HONG KONG)
- 328** Cd²⁺-produced disturbance of mitochondrial function: the cause/consequence relationships
BELYAEVA E.A., SARIS N.E. (RUSSIA)
- 334** The influence of zinc on basal, oxidative, alkylative DNA damage and DNA repair efficacy in human peripheral blood lymphocytes
JAŁTE J., BŁASIAK J., CZECHOWSKA A., MOCCHEGIANI E., SAPOTA A. (POLAND AND ITALY)
- 341** Cell type dependent effect of cobalt protoporphyrin on VEGF expression
LOBODA A., JOZKOWICZ A., DULAK J. (POLAND)

- 347 The comparison of chromium mediated cell responses in two different human cell lines
ABULADZE M., ASATIANI N., KARTVELISHVILI T., KULIKOVA N., SAPOJNIKOVA N. (GEORGIA)
- 353 Cytogenetic evaluation of potassium dichromate toxicity in bone marrow cells of Sprague-Dawley rats
PATLOLLA A., ARMSTRONG N., TCHOUNWOU P.B. (USA)

VIII

CARDIOVASCULAR DISEASES – EPIDEMIOLOGY

- 359 Selenium (Se) intake, blood status in healthy Hungarian and American children, asthmatics and diabetics, all living in Budapest
SZIKLAI-LÁSZLÓ I., KOVÁCS I., ADÁNYI N., CSER M.A. (HUNGARY)
- 366 Specific job-exposure records to assess contact with metal ions
DESCHAMPS F., LESAGE F.X. (FRANCE)
- 371 Circulating immune complexes and trace elements (copper, iron and selenium) as markers in oral precancer and cancer
KHANNA S.S., KARJODKAR F.R. (INDIA)

IX

METAL IONS AND CANCER (II)

Targeted metal-based drugs

- 379 The tumor-associated metalloenzyme carbonic anhydrase IX (CA IX) as a drug target
SUPURAN C.T. (ITALY)
- 382 Are metal-chelated peptides entering a new field of applications? An overview of possibilities
BREEMAN W.A.P., KRENNING E.P. (THE NETHERLANDS)
- 389 A mononuclear 1:2 $[\text{Cu}^{\text{II}}(\text{Trp-Trp})_2\text{Cl}]^+$ complex with DNA nuclease activity-potential nucleic acid targeted drug
REDDY P.R., RAJU N., REDDY K.V.G. (INDIA)
- 393 Effects of imidazole containing R_C substituents on the metal binding capability of potentially metalloenzyme inhibitor hydroxamic acids
FARKAS E., CSAPÓ E., BUGLYÓ P. (HUNGARY)
- 399 Investigation of antioxidant properties of the cluster rhenium compound in the model of tumor growth
LEUS I., COLLERY P., ZABITSKAYA E., SHAMELASHVILI K., YEGOROVA D., SHTEMENKO N. (UKRAINE AND FRANCE)

Overcoming resistance – Modulation of toxicity – Imaging

- 403 Copper chelate in overcoming MDR in cancer
CHOUDHURI S.K., MAJUMDER S., CHATTERJEE S., GHOSH R.D., GANGULY A., MOOKERJEE A. (INDIA)

- 413** Ascorbic acid – modulation of arsenic trioxide toxicity: implication for the clinical treatment of acute promyelocytic leukemia
YEDJOU C.G., BROWN E., ROGERS C., TCHOUNWOU P.B. (USA)
- 419** N-acetyl-cysteine protection against lead-induced oxidative stress and genotoxicity in human liver carcinoma (HepG₂) cells
YEDJOU C.G., WATERS D., TCHOUNWOU P.B. (USA)
- 425** Role of chelates in magnetic resonance imaging studies
TRIPATHI L., KUMAR P. (INDIA)

Combination of metals as anticancer therapy

- 431** Cationic polymer-mixed metal complexes with antitumor activity (Part I)
BADAWI A.M., MAZROUAA A.M., NOAMAN E., YOUSSEF A.M., MANSOUR N.A., COLLERY P. (EGYPT AND FRANCE)
- 441** Recent advantages in applications of cluster rhenium compounds as antitumor agents
SHTEMENKO N., COLLERY P., SHTEMENKO A. (UKRAINE AND FRANCE)

Potential of electromagnetic therapy or photodynamic therapy by metals as anticancer therapy

- 446** The synthesis and characterization of novel photosensitizer for the photodynamic therapy
GUO X. (CHINA)
- 451** Influence of metal ions on thermodynamic stability of leukemic DNA *in vivo*. Microcalorimetric investigation
MONASELIDZE J.R., BREGADZE V.G., BARBAKADZE S.V., MAJAGALADZE G.V., KHACHIDZE D.G., KILADZE M.T., KUCHADZE Z.R., LEZHAVA T.A., JOKHADZE T.A. (GEORGIA)
- 458** Cytotoxic effect of arsenic trioxide in adenocarcinoma colorectal cancer (HT-29) cells
STEVENS J.J., GRAHAM-EVANS B., WALKER A.M., ARMSTEAD B., TCHOUNWOU P.B. (USA)
- 463** Photoactivated DNA modifications by platinum(IV) azide complex in cell-free media
KAŠPÁRKOVÁ J., HERINGOVÁ P., BRABEC V., MACKAY F., SADLER P.J. (CZECH REPUBLIC AND UK)
- 470** Possible hepatostabilizing properties of the cluster rhenium compound in tumor-bearing rats
IVCHUK V., PARAMONOVA K., BERSENINA O., COLLERY P., SHTEMENKO N. (UKRAINE AND FRANCE)
- 474** Glucose level, heterogeneity of hemoglobine in blood and giant cancer cells in the model of tumor growth
POLISHKO T.N., COLLERY P., MELESHKO L.M., VORONKOVA Y.S., ZHABITSKAYA E.D., TIMBAI E., SHTEMENKO N. (UKRAINE)
- 478** Photodamage study of zinc-5,10,15,20-tetrakis(4-sulphonatophenyl)porphyrine on A549 cell lines by atomic force microscopy
TOMANKOVA K., KOLAROVA H., MOSINGER J. (CZECH REPUBLIC)

- 484** Sonodynamic and photodynamic effect induced by light, ultrasound and disulfonated chloroaluminium phthalocyanine on G361 melanoma cell lines
KOLAROVA H., TOMANKOVA K., KOLAR P. (CZECH REPUBLIC)
- 489** Lead-induced cytotoxicity and oxidative stress in human leukemia (HL-60) cells
YEDJOU C., HAYNES L., DORSEY W., McMURRAY R., TCHOUNWOU P.B. (USA)
- 495** Genotoxic mechanisms of arsenic trioxide effect in human Jurkat T-lymphoma cells
YEDJOU C., SUTTON L.M., TCHOUNWOU P.B. (USA)
- 500** Photodynamic activity study of palladium(II) meso-tetrakis (4-sulfonatophenyl) porphyrin sensitizer on cancer cell line A549
KOLAR P., KOLAROVA H., TOMANKOVA K., MOSINGER J. (CZECH REPUBLIC)

X

ANALYTICAL METHODS

- 505** EPR spectroscopy for studying equilibrium and structural properties of copper(II) – small bioligand complexes in aqua solutions
NAGY N.V., GAIDA T., HENRY B., GIZZI P., PAKSI Z., ROCKENBAUER A. (HUNGARY AND FRANCE)
- 511** Electrophoretic studies on biologically important copper (II), manganese(II) and uranyl(II) binary complexes with proline
TEWARI B.B. (GUYANA)
- 516** Estimation of precision and inaccuracy for determination of copper and zinc by AAS in serum on the basis of interlaboratory comparison data (accreditation ISO 15189)
IZQUIERDO-ÁLVAREZ S., RUATA M.L.C., BOUDET GARCÍA A., GARCÍA DE JALÓN-COMET A., ESCANERO-MARCÉN J.F. (SPAIN)
- 522** Probing cation-binding sites in metalloproteins using ⁵⁷Co emission Mössbauer spectroscopy. New developments, potentials and prospects
KAMNEV A.A. (RUSSIA)
- 528** Are desirable quality specifications for evaluating laboratory performance in external quality assessment schemes for copper, zinc and selenium in human serum or plasma attainable?
ARNAUD J., WEBER J.P., WEYKAMP C.W., PARSONS P.J., MAZARRASA O., MENDITTO A., PATRIARCA M.A., TAYLOR A. (FRANCE, CANADA, THE NETHERLANDS, USA, SPAIN, ITALY AND UK)
- 533** Gold nanoparticle based sensing of toxic metal ions
RAY P.C., DARBHA G.K., TOVMACHENKO O., RAI U.S., SINGH A.K., GRIFFIN J., HARDY W. (USA)
- 538** Analytical methodologies for lead and cadmium in breast milk as exposure biomarkers in Uruguay
MAÑAY N., DÍAZ L., CLAVIJO G., MARTÍNEZ G., RAMPOLDI O., COUSILLAS A., (URUGUAY)

- 544** Improved determination of Manganese in urine by electrothermal atomic absorption spectrometry and Zeeman background correction
GUILLARD O., FAVREAU F., FAUCONNEAU B., MAUCO G., PINEAU A. (FRANCE)
- 547** Simultaneous determination of minerals in beverage samples using capillary zone electrophoresis and comparison with high performance liquid chromatography
FUJII T., SUMIDA K. (JAPAN)

XI

INFLAMMATION AND IMMUNITY

- 552** Studies on ¹⁹⁸Au-insulin complex: a proposed radiopharmaceutical for targeted therapy
ROY K., SEN S., LAHIRI S. (INDIA)
- 556** Nanogoldpharmaceutics: evaluating the response of experimentally-induced polyarthritis in rat models to colloidal gold
BROWN C.L., BUSHELL G.R., TIEKINK E.R.T., WHITEHOUSE M.W. (AUSTRALIA AND USA)
- 561** Metal-mediated immunomodulation; a role for metallothionein in both normal and stressed immune systems
LYNES M.A., CANPOLAT E., CROWTHERS K.C., UNFRICHT D.W., PILAR G., MARUSOV G., SILBART L.K., YIN X. (USA)
- 569** Decondensation of chromosomes heterochromatinization regions by effect of heavy metals and bioregulators in cultured lymphocytes from old individuals
LEZHAVA T.A., JOKHADZE T.A., MONASELIDZE J.R. (GEORGIA)
- 577** Favourable effect of black radish root extract on element homeostasis in systemic low inflammation (rat experiment)
SZENTMIHÁLYI K., LUGASI A., MAY Z., HEGEDUS V., SZILÁGYI M., BLÁZOVICS A. (HUNGARY)
- 583** Cytotoxicity and oxidative stress in human liver carcinoma cells exposed to arsenic trioxide (HepG₂)
BROWN E., YEDJOU C.G., TCHOUNWOU P.B. (USA)
- 588** Influence of inorganic microparticles on the generation of reactive oxygen species by cells from patients with chronic inflammatory bowel disease
PELE L.C., THOMPSON R.P.H., POWELL J.J. (UK)
- 594** Inorganic dietary microparticles and cell-mediated immunity
HEWITT R.E., POWELL J.J., PELE L.C. (UK)

XII

TOXICOLOGY

- 601** Chemical toxicity of uranium in mammals: a summary of some recent results
LINARES V., BELLÉS M., ALBINA M.L., ALONSO V., DOMINGO J.L., SÁNCHEZ D.J. (SPAIN)

- 609** Chromium toxicity to pollen, the male gametophyte of higher plants
SCOCCIANTI V., CRINELLI R., SPERANZA A. (ITALY)
- 615** Selenium and diazinon interaction and effect on rat serum cholinesterase activity after and intraperitoneal administration
ŠIŠKA B., TOMAN R., GOLIAN J., KRACÍROVÁ A., HLUCHÝ S. (SLOVAK REPUBLIC)
- 621** Cadmium-induced generation of reactive oxygen species in renal proximal tubule cells occurs upstream of ceramide-dependent calpain activation and does not involve mitochondrial damage
THÉVENOD F., LEE W.K. (GERMANY)
- 629** The role of Hsp70-overexpression of primary embryonic cells in apoptosis following Cd-exposure
ZERIKIOTIS S., ANGELIDIS C., VEZYRAKI P. (GREECE)
- 636** Protective effect of ascorbic acid against chromium-induced hepatic and renal toxicity in Sprague-Dawley rats
ARMSTRONG N.N., PATLOLLA A.K., TCHOUNWOU P.B. (USA)
- 642** Acute toxicity of sodium dichromate to goldfish, *Carassium auratus*
VELMA V., TCHOUNWOU P.B. (USA)
- 647** Bull testes histological structure from area contaminated by heavy metals
HLUCHÝ S., TOMAN R., GOLIAN J., ŠIŠKA B. (SLOVAK REPUBLIC)
- 651** Ultrastructural changes in the testes of rabbits after intraperitoneal and peroral administrations of cadmium
TOMAN R., MASSÁNYI P., HLUCHÝ S., GOLIAN J., PIVKO J., LUKÁC N., ŠIŠKA B., MARTINIAKOVÁ M., STAWARZ R., FORMICKI G., JANCOVÁ A. (POLAND AND SLOVAK REPUBLIC)
- 658** Zebrafish as a model organism to study cadmium and calcium kinetics in developing embryos
GALVEZ F., COX A., SVOBODA K.R. (USA)

XIII

NEUROLOGY

- 664** Metal-induced changes of amyloid proteins associated with neurodegenerative diseases
DROCHIOIU G., MANEA M., MURARIU M., POPA K., GRADINARU R., PRZYBYLSKI M. (ROMANIA AND GERMANY)
- 670** Manganese effects on the adult rat brain antioxidant status and the activities of acetylcholinesterase, (Na⁺,K⁺)-ATPase and Mg²⁺-ATPase: modulation by L-cysteine
LIPI C., ZARROS A., GALANOPOULOU P., THEOCHARIS S., SKANDALI N., AL-HUMADI H., ANIFANTAKI F., GKROUZMAN E., MELLIOS Z., TSAKIRIS S. (GREECE)
- 676** Crystal structures and anticonvulsant activities of Zn(II) and Co(II) tetraqua (3-nitro-4-hydroxybenzoato) complexes
D'ANGELO J., MORGANT G., DESMAËLE D., FRAISSE B., SORENSON J.R.J. (FRANCE AND USA)

- 684** Aluminum effects on the behavior of the Tg-2576 transgenic mouse, a model for Alzheimer's disease. Evaluation of the protective role of melatonin
GARCÍA T., GÓMEZ M., RIBES D., COLOMINA M.T., ESPARZA J.L., DOMINGO J.L. (SPAIN)
- 689** Effects of oral aluminum exposure on neurogenesis in a transgenic mouse model of Alzheimer's disease
RIBES D., VICENS P., TORRENTE M., CABRÉ M., DOMINGO J.L., COLOMINA M.T. (SPAIN)
- 695** Manganese transport into the brain: putative mechanisms
ASCHNER M., DOS SANTOS A.P.M., ERIKSON K.M., ZHENG W. (USA)
- 701** Metal ion binding to peptides involved in the neurodegenerative diseases: a model metal-peptide complex
MURARIU M., DRAGAN E.S., MANEA M., DROCHIOIU G. (ROMANIA AND GERMANY)
- 708** Structural alteration in the brain tissues induced by experimental lead toxicity of rats
DJEBLI N., REBAI O. (ALGERIA)
- 716** Effects of a Se restricted-diet on brain antioxidant status and brain function in aged rats
HININGER-FAVIER I., CANINI F., SANCHEZ H., BELEM F., OSMAN M., DUCROS V., ARNAUD J., BIGARD X., ROUSSEL A.M. (FRANCE)

XIV

SFERETE SPECIAL HALF-DAY

- 721** Place of trace elements in DNA damages and repair
FAVIER A. (FRANCE)
- 727** Zinc transporter 8 (*SLC30A8*) and diabetes: a promising new diagnostic and therapeutic target
SEVE M. (FRANCE)
- 731** Selenium incorporation into selenoproteins, implications in human health
LATRÈCHE L., CHAVATTE L. (FRANCE)
- 738** Molecular pathogenesis of Wilson disease and mutation analysis of ATP7B gene in French patients
BOST M., CHAPPUIS P. (FRANCE)
- 744** Post-transcriptional regulation of cellular iron homeostasis in metazoans
MOULIS J.M., DYCKE C., MARTELLI A., BRAZZOLOTTO X., ROUSSELET E. (FRANCE AND UK)

XV

METAL IONS AND CANCER (III): GOLD

- 749** Gold nanoparticle based NSET probe for HIV-1 DNA and breast cancer cell detection
RAY P.C., DARBHA G.K., NITTALA M.R., YU H., GRIFFIN J. (USA)

XVI

ENDOCRINOLOGY

- 754** Insulin resistance and body weight: recent human studies documenting the benefits of supplemental chromium
ANDERSON R.A. (USA)
- 758** Oxidative stress and antioxidant trace elements in obesity
ROUSSEL A.M. (FRANCE)
- 764** Effects of exposure to Cr(VI) contaminated water on glucose and glycogen turnover: an NMR study
ALPOIM M.C., SOARES F., MARTINS F., RAFAEL A.I., CARVALHO R.A. (PORTUGAL)
- 769** Vanadium pharmacokinetics and bioavailability of two vanadium bipyridine complexes, with reference to vanadyl sulfate, after oral administration to streptozotocin-induced diabetic rats
KROSNAK M., AZAY-MILHAU J., GRYBOS R., CROS G., GATTACCECA F., BRÈS J. (FRANCE AND POLAND)
- 776** Comparison of the insulin-like effects of vanadate, vanadyl, and tungstate in rodent and human fat cells
MISSAOUI S., ABELLO V., PRÉVOT D., TESTAR X., CARPÉNÉ C. (TUNISIE, SPAIN, AND FRANCE)

XVII

MICRO-ORGANISMS AND INFECTION (III)

- 782** *Eleutherococcus senticosus* (Rupr. et Maxim. ex Maxim) extract influence on cadmium intoxication of mouse internal organs
SMALINSKIENE A., LESAUSKAITE V., SAVICKIENE N., ZITKEVICIUS V., SAVICKAS A., RYSELIS S., ABDRAKHMANOV O., SADAUSKIENE I., IVANOV L. (LITHUANIA)
- 788** The efflux of potassium ions from the *Saccharomyces cerevisiae* cells and spheroplasts treated with silver and copper ions
VAGABOV V.M., IVANOV A. Y., KULAKOVSKAYA T.V., KULAKOVSKAY E.V., PETROV V.V., KULAEV I.S. (RUSSIA)
- 792** Novel applications of copper oxide in medicine: from preventing infection to wound healing
GABBAY J., BORKOW G. (USA)

- 796** Metal based pyridinyl sulfonamides: synthesis and biological significance
 CHOHAN S. (PAKISTAN)
- 804** Influence of cadmium stress on aquaporins activity in *Arabidopsis halleri* (L.) O'Kane & Al-Shehbaz ssp. *halleri* cells
 PRZEDPELSKA E., MUSZYNSKA A., POLATAJKO A., KURCZYNSKA E., WIERZBICKA M. (POLAND AND GERMANY)

XVIII

NUTRITION

- 811** Comparison of the non-haem iron content of UK foods between 1980 and 2000
 BRUGGRABER S.F.A., CHAPMAN T., JUGDAOHSINGH R., POWELL J.J. (UK)
- 817** Relationship between methyl mercury and n-3 polyunsaturated fatty acid in the blood in seafood consumers
 ANWAR M., TETSUO A., MULAZIM H.B., SUMINORI A. (JAPAN)
- 825** The content of cadmium, lead, copper and mercury in selected meat products
 GOLIAN J., TOMAN R., ŠIŠKA B., HLUCHÝ S. (SLOVAK REPUBLIC)
- 830** How does nitrogen fertilizer forms, dose and soil Pb pollution affect spinach qualities?
 LIU YAN-JU, ZHU YONG-GUAN, DING HUI, RÉALE E. (CHINA)
- 838** Protective role of cystine against the radiotoxic cations within several germination experiments
 POPA K., MURARIU M., CECAL A., DROCHIOIU G. (ROMANIA)
- 843** Clinical treatment of rickets in Bangladeshi children: nutritional advice or calcium therapy?
 ARNAUD J., CRAVIARI T., FUSTINONI S., FISCHER P.R., PETTIFOR J.M., MEISNER C.C., CIMMA J.P., HAQUE S. (FRANCE AND USA)
- 848** The influence of manganese supplementation on blood manganese levels and leucocyte expression or activity of manganese-dependent enzymes
 KOPANSKA K., PEREIRA D.A., BRUGGRABER S.F.A., CHARALAMBOS C., POWELL J.J. (UK)

XIX

IRON

- 855** Serum ferritin concentration and bone mineral density in dialysis patients
 GRZEGORZEWSKA A.E., MLOT-MICHALSKA M. (POLAND)
- 861** Iron nutritional status in an adult population from southern Spain: influence of lifestyle factors
 SÁNCHEZ C., PLANELL E., LLOPIS J., ARANDA P. (SPAIN)

- 867** Novel iron complexes with quinoxaline N¹, N⁴-dioxide derivatives: synthesis, characterization and antimycobacterial activity
TARALLO M.B., URQUIOLA C., MONGE A., PAVAN F.R., LEITE C.Q., TORRE M.H., GAMBINO D. (URUGUAY AND BRASIL)
- 873** The use of DRC-ICP-MS to determine isotopic enrichment in iron absorption studies
FARIA N., WINSHIP P., PEREIRA D., POWELL J.J. (UK)
- 878** An *in vitro* model for assessing the gastrointestinal dissolution properties of iron: effect of organic acids and bile acids
PEREIRA D.A., MERGLER B., FARIA N., PARRACHO H., POWELL J.J. (UK)
- 883** Effect of jumil bug intake on provitamin A and iron link to deficiency status
MELO V., HERRERA M.C., RIVERO J., CALVO C., SALAS J. (MÉXICO)
- 887** Anti-oxidant activity of hydroxy(thio)pyrone iron-chelators
CHAVES S., CANÁRIO S., CARRASCO M., MIRA L., SANTOS M.A. (PORTUGAL)
- 893** Modeling of interaction of alkali and alkaline earth metal cations with naturally occurring antioxidants (uric acid and ascorbic acid)
SHUKLA M.K., ALLEN R.N., LESZCZYNSKI J. (USA)
- 899** Oral ferrous sulphate is associated with decreased plasma ascorbate
HUTCHINSON C., GEISSLER C.A., MUDWAY I.S., POWELL J.J. (UK)
- 905** Designing an algorithm to calculate intestinal iron availability
RICKARD A.P., CHATFIELD M.D., STEPHEN A.M., POWELL J.J. (UK)

XX

ZINC AND MAGNESIUM

- 910** Effects of magnesium L-aspartate, magnesium chloride and their combinations with pyridoxine hydrochloride on urolithiasis in magnesium-deficient rats
IEZHITSA I.N., SPASOV A.A., KHARITONOVA M.V., KRAVCHENKO M.S. (RUSSIA)
- 918** Zinc in the treatment of hepatic encephalopathy
GRÜNGREIFF K. (GERMANY)
- 921** MD simulation estimation on the effect of zinc on exposure of hydrophobic patches of bovine carbonic anhydrase
MONAJEMI M., AFSHARNEZHAD S., MOLLAAMIN F. (IRAN)

XXI

ABSTRACTS

- 927** Microbial diversity in extreme environments: microbial structure of a sludge lagoon uranium-contaminated
CHUNG A.P., PEREIRA A., NEVES L., MORAIS P.V. (PORTUGAL)

- 928** *In vivo* modulation of arginase activity by magnesium diets
 DEMOUGEOT C., NAPPEY M., ANDRÉ C., GUILLAUME Y., BERTHELOT A.
 (FRANCE)
- 929** Comparison of the cytotoxic effects of a Sn-Mercaptonicotinic acid complex to the coherent electromagnetic resonant radiofrequency spectra of the same complex, on a rat leiomyosarcoma malignant cell line
 EVANGELOU A.M., VERGINADIS I., AVDIKOS A., SIMOS I., HAVELAS K., ZOURIDAKIS A., KARKABOUNAS S. (GREECE)
- 930** Dissimilar actions of Cr (VI) oxyanions in *Ochrobactrum tritici* strain 5bv1
 FRANCISCO R., MORENO A., ALPOIM M.C., GRASS G., MORAIS P.V.
 (PORTUGAL)
- 931** *In vivo* studies on metal and antihypertensive drugs in relation to atherogenic factors
 MILA S., FILIOU D., LEKKAS P., TSELEPIS A., ZOURIDAKIS A., EVANGELOU A., KALFAKAKOU V. (GREECE)
- 932** Cytogenetic analysis of a human epithelial bronchial cell line chronically exposed to a sub-toxic dose of hexavalent chromium
 RODRIGUES C., URBANA A.M., CARREIRA I.M., MATOSO E., ALPOIM M.C.
 (PORTUGAL)
- 933** Identification of different loci involved in arsenic oxidation in one strain of *Ochrobactrum tritici*
 BRANCO R., MORAIS P.V. (PORTUGAL)
- 933** Structural investigations of sol-gel derived aluminosilicate compounds
 TĂMĂȘAN M., RADU T., SIMON S., BARBUR P., MOCUTA H., SIMON V.
 (ROMANIA)
- 934** Structural characteristics of silica-bismuthate heavy metal glass systems
 TODEA M., SIMON S., SIMON V. (ROMANIA)
- 935** INDEX