Bibliography

Adler AJ, Barth RH and Berlyne GM. Effects of lead on oxygen free radical metabolism: Inhibition of superoxide dismutase activity. *Trace Elem Medicine* 1993; 10: 93-96.

Adonaylo VN and Oteiza PI. Lead intoxication: antioxidant defenses and oxidative damage in rat brain. *Toxicology* 1999; 135: 77-85.

Alessio L and Foa V. Lead. In: Alessio L et al., eds. Human biological monitoring of industrial chemicals series. Luxembourg, Commission of the European Communities, 1983:107.

Amoruso MA, Witz G and Goldstein BD. Alteration of erythrocyte membrane fluidity by heavy metal cations. *Toxicol Indust Health* 1987; 3: 135-144.

Andersson H, Petersson-Grave K, Lindqvist E, Luthman J, Oskarsson A and Olson L. Low level cadmium exposure of lactating rats causes alterations in brain serotonin levels in the offspring. *Neurotoxicol Teratol* 1997; 19: 105-115.

Angell NF and Lavery JP. The relationship of blood lead levels to obstetric outcome. *Am J Obst Gynecol* 1982; 142:40-46.

Antonio MT, Benito MJ, Leret ML and Corpas I. Gestational administration of cadmium alters the neurotransmitter levels in newborn rat brains. *J Appl Toxicol* 1998; 18: 83-88.

Antonio MT, Corpas I and Leret ML. Neurochemical changes in newborn rat's brain after gestational cadmium and lead exposure. *Toxicol Lett* 1999; 104: 1-9.

Arendash GW and Gorski RA. Enhancement of sexual behavior in female rats by neonatal transplantation of brain tissue from males. *Science* 1982; 217: 1276-1278.

Arito H, Sudo A and Suzuki Y. Aggressive behavior of the rat induced by repeated administration of cadmium. *Toxicol Letters* 1981; 7: 457-461.

Ariza ME, Bijur GN and Williams MV. Lead and mercury mutagenesis: role of H_2O_2, superoxide dismutase and xanthine oxidase. *Environ Mol Mutagen* 1998; 31, 352-361.

Arizono K. Ota S and Ariyoshi T. Purification of metallothionein like proteins in rat placenta. *Bull Environ Contam Toxicol* 1981; 27: 671-677.

ATSDR. Toxicological profile for cadmium. ATSDR/U.S. Public Health Service. ATSDR/TP-88/08: 1989.

ATSDR. Toxicological profile for lead (update), prepared by Research Triangle Institute, July 1999.

Azzi A, Boscoboinik D and Hensey C. The protein kinase C family. *Eur J Biochem* 1992; 208: 547-557.

Audesirk G. Electrophysiology of lead interaction. Effects on voltage-sensitive ion channels. *Neurotoxicity* 1993; 14: 137-148.

Bagchi D, Bagchi M, Hassoun E and Stohs S. Cadmium induced excretion of urinary lipid metabolites, DNA damage, glutathione depletion and hepatic lipid peroxidation in Sprague-Dawley rats. *Biol Trace Elem Res* 1996; 53: 143-154.

Baranski B and Sitarek K. Effect of oral and inhalation exposure to cadmium on the oestrous cycle in rats. *Toxicol Lett* 1987; 36(3): 267-73.

Baratta M, West LA, Turzillo AM and Nett TM. Activin modulates differential effects of estradiol on synthesis and secretion of follicle stimulating hormone in ovine pituitary cells. *Biol Reprod* 2001; 64: 714-719.

Barltrop D. Transfer of lead to the human foetus. In: Barltrop D, Burland WL, eds. Mineral metabolism in pediatrics. Oxford, Blackwell Scientific Publications, 1969:135-151

Barrett H.M, Irwin DA and Semmons E. Studies on the toxicity of inhaled cadmium I. The acute toxicity of cadmium oxide by inhalation. *J Ing Hyg Toxicol* 1947; 29: 279.

Bartlett RG. Phosphorus assay in column chromatography. *J Biol Chem* 1959; 234: 466-468.

Bayne BL, Brown DA. Burns K, Dixon DR, Ivanovici A, Livingstone DR, Lowe DM, Moore MN, Stebbing ARD and Widdows J. In: the effects of stress and pollution on marine animals. Praeger, Connecticut, USA, 1985.

Bechara EJH. Oxidative stress in acute intermittent porphyria and lead poisoning may be triggered by 5-aminolevulinic acid. *Brazilian J Med Biol Res* 1996; 29: 841-851.

Belisle S, Guevin JF and Bellabarba D. Luteinizing releasing hormone binds to enriched human placental membranes and stimulates *in vitro* the synthesis of bioactive human chorionic gonadotropin. *J Clin Endocrinol Me*tab 1984, 59: 119-126.

Berlin M and Ulberg S. The fate of Cd^{109} in the mouse: an autoradiographic study after a single intravenous injection of $Cd^{109}Cl_2$. *Arch Environ Health* 1963; 7: 686.

Bernard A and Lauwerys R. Cadmium in human populations. *Experimentia* 1986; 40: 143-152.

Berndt WO and Ansari RA. Nephrotoxicity of metals: Effects on plasma membrane function. *Toxicol Lett* 1990; 53: 87-92

Bernt E and Bergmeyer H-U. Inorganic peroxides. In: Bergmeyer H-U (eds) Methods in Enzymatic Analysis, 1965; 633-635 Academic Press, New York.

Beutler E and Gelbart J. Plasma glutathione in health and in patients with malignant disease. *J Lab Clin Med* 1985; 105: 581-584.

Bhattacharyya D, Boulden AM, Fooet RS and Miltra S. Effect og poly valent metal ions on the reactivity of human O6-methylguanine-DNA-methyl transferase. *Carcinogenesis* 1988; 9: 683-685.

Blazka ME and Shaikh ZA. Sex differences in hepatic and renal cadmium accumulation and metallothionein induction. *Biochem Pharmacol* 1991; 41: 775-780.

Bloj B, Morero RD, Farias RN and Trucco RE. Membrane lipid fatty acids and regulation of membrane bound enzymes. Allosteric behavior of erythrocyte Mg^{2+}ATPase. $Na^{+}K^{+}$ATPase and cholinesterase from rats fed different fat supplemented diets. *Biochem Biophys Acta* 1973; 311: 67-69.

Bludovska M, Kotyzova D, Kontensky J and Eybl V. The influence of α-lipoic acid on the toxicity of cadmium. *Gen Physiol Biophys* 1999; 18: 28-32.

Boadi WY, Urbach Jbrandes JM and Yannai S. In vitro exposure to mercury and cadmium alters term human placental membrane fluidity. *Toxicol Appl Pharmacol* 1992; 116(1): 17-23.

Bodis J, Torok A, Tinnberg H-R, Volker H, Hamori M and Cledon P. Influence of serotonin on progesterone and estradiol secretion by cultured human granulosa cells. *Fertil Steril* 1992; 57: 1008–1011.

Boisset M, Girard F, Godin J and Boudene C. Cadmium content of lung, liver, and kidney in rats exposed to cadmium oxide fumes. *Int Arch Occup Environ Health* 1978: 41:41-53.

Bondy SC. Oxygen generation as a basis for neurotoxicity by metals. In: toxicology of metals. Chang LW, Eds; CRC Press, Baco Raton, 1996: 699-706.

Bonsnes RM and Taussky HH. Colorimetric determination of creatinine by Jaffe reaction. *J Biol Chem* 1945; 158: 581-591.

Bordoni A, Biagi PL, Parenti Castelli G, Hrelia S, Rossi CA, Lercker G, Izpisua JC, Barber T, Cabo J and Lenaz G. Effect of a hyperlipidic diet on lipid composition, fluidity and Na^+K^+ATPase activity of rat erythrocyte membranes. *Membr Biochem* 1989; 8: 11-18.

Bowers GN Jr. and McComb RB. Measurement of total alkaline phosphatase activity in human serum. *Clin Chem* 1975; 21: 1988-1995.

Braughler JM, Duncan LA and Chase RL. The involvement of iron in LPO. Importance of ferric to ferrous ratios in nation. *J Biol Chem* 1986; 261: 10282-10289.

Bratton GR, Hiney J.K and Dees WL. Lead (Pb) alters the norepinephrine induced secretion of luteinizing hormone releasing hormone from median eminence of adult male rats in vitro. *Life Science* 1994; 55: 563-571.

Bressler JP and Goldstein GW. Mechanisms of lead neurotoxicity. *Biochem Pharmacol* 1991; 41: 479-484.

Bressler J. Kim KA, Chakraborti T and Goldstein G. Molecular mechanisms of lead neurotoxicity. *Neurochem Res* 1999; 24(4): 595-600.

Burton K. Determination of DNA concentration with diphenylamine. In: Grossman, L. & Moldave, K. (Eds) Methods in Enzymology X I I B, NewYork, Academic Press, 1968; 163-166.

Campbell BC, Beattie AD, Moore MR, Goldberg A and Reid AG. Renal insufficiency associated with excessive lead exposure. *BMJ* 1977; 1: 482-485.

Carrell RW, Winterbourn CC and Rachmillewitz EA. Activated oxygen and hemolysis. *Brit J Haematol* 1975; 30: 259-264.

Casabiell X, Pineiro V, Vega F, De La Cruz LF, Dieguez C and Casanueva FF. Leptin, reproduction and sex steroids. *Pituitary* 2001; 4: 93-99.

Casalino E, Calzaretti G, Sblano C and Landriscina C. Molecular inhibitory mechanisms of antioxidant enzymes in rat liver and kidney by cadmium. *Toxicology* 2002; 179: 37-50.

Chan HM and Cherian MG. Mobilization of hepatic cadmium in pregnant rats. *Toxicol Appl Pharmacol* 1993; 120: 308-314.

Chao H and Chung LWK. Neonatal imprinting and hepatic cytochrome P-450: immunochemical evidence for the presence of a sex-dependent and neonatally imprinted form(s) of hepatic cytochrome P-450. *Mol Pharmacol* 1982; 21: 744–752.

Chaurasia SS and Kar A. Protective effects of vitamin E against lead induced deterioration of membrane associated type-I iodothyronine 5-monodeiodinase (5 D-I) activity in male mice. *Toxicology* 1997; 124: 203-209.

Chautan M, Dell Amico M, Bourdeaux M, Leonardi J, Charbonnier M and Lafont H. Lipid diet and enterocyte microsomal membrane fluidity in rats. *Chem Phys Lipids* 1990; 54: 25-32.

Chernoff N. Teratogenic effects of cadmium in rats. *Teratology* 1973; 8(1): 29-32.

Chiquoine AD. Effect of cadmium chloride on the pregnant albino mouse. *J Reprod Fertil* 1965; 10: 263-265.

Chiu R, Imbra R, Imagawa M and Karin M. Metallothionein structure and function in regulating the trace elements in human. In: essential and Toxic Elements in Human Health and Disease. Alan R. Liss, Inc. 1988; 393-406.

Chowdhury AR, Dewan A and Gandhi DN. Toxic effect of lead on the testes of rat. *Biomedica Biochimica Acta* 1984; 43:95-100.

Christie NT and Costa M. In vitro assessment of the toxicity of metal compounds. IV. Disposition of metals in cells: interaction with membranes, glutathione, metallothionein and DNA. *Biol Trace Elem Res* 1984; 6: 139-158.

Cook JA, Marconi EA and Di Luzio NR. Lead, cadmium and endotoxin interaction: effect on mortality and hepatic function. *Toxicol Pharmacol* 1974; 28: 292-302.

Cooper GP and Manalis RS. Influence of heavy metals on synaptic transmission: A review. *Neurotoxicology* 1983; 4: 69-84.

Cooper GP and Manalis RS. Interaction of lead and cadmium on acetylcholine release at the frog neuromuscular junction. *Toxicol Appl Pharmacol* 1984; 74: 411-416.

Cooper RL, Goldaman JM, Rehnberg GL, McElroy WK and Hein JF. Effects of metal cations on pituitary hormone secretion in vitro. *J Biochem Toxicol* 1987; 2: 241-249.

Corpas I, Benito MJ and Antonio MT. Hepatic and renal alterations in newborn rats induced by prenatal and early lactational exposure to lead and/or cadmium. *Rev Toxicol* 1996; 13: 76-82.

Cullen C, Singh A, Dykeman A, Rice D and Foster W. Chronic lead exposure induces ultrastructural alterations in the monkey seminal vesicle. *J Submicrosc Cytol Pathol* 1993; 25: 127-135.

Cullen MR, Kayne RD and Robins JM. Endocrine and reproductive dysfunction in men associated with occupational inorganic lead intoxication. *Arch Environ Health* 1984; 39:431-440.

Daggett DA, Oberley TD, Nelson SA, Wright LS, Kornguth SE and Siegel FL. Effects of lead on rat kidney and liver: GST expression and oxidative stress. *Toxicology* 1998; 128: 191-206.

Das KP, Das PC, Dasgupta S and Dey CC. Serotoninergic-cholinergic neurotransmitters function in brain during cadmium exposure in protein restricted rat. *Biol Trace Elem Res* 1993; 36: 119-127.

Davidson KA. Toxicity summary for lead (inorganic), Oak Ridge National Laboratory, December 1994.

Dearth RK, Hiney JK, Srivastava V, Burdick SB, Bratton GR and Dees WL. Effects of lead (Pb) exposure during gestation and lactation on female pubertal development in the rat. : *Reprod Toxicol* 2002; 16:343-52.

de Bethizy JD and Hayes JR. Metabolism: a determinant of toxicity. In Principles and Methods of Toxicology Ed. AW Hayes. Raven Press, New York 1994; 59–100.

De la Fuente H, Portales-Perez D, Baranda L, Diaz-Barriga F, Saavedra-Alanis V, Layseca E and Gonzalez-Amaro R. Effect of arsenic, cadmium and lead on the induction of apoptosis of normal human mononuclear cells. *Clin Exp Immunol* 2002; 129: 69-77.

Denker L. Possible emchanism of cadmium toxicity in Golden hamsters and mice: uptake by the embryo, placenta and ovary. *J Reprod Fertil.* 1975; 44: 461-471.

Dinis TCP, Almeida LM and Madeira VMC. Lipid peroxidation in sarcoplasmic reticulam membranes: effect on functional and biophysical properties. *Arch Biochem Biophys* 1993; 301: 256-264.

Drabkin DL and Austin JH. Spectrophotometric studies: Spectrometric constants for common haemoglobin derivatives in human, dog and rabbit blood. *J Biol Chem* 1932; 98: 719.

Drouva S and Gallo R. Catecholamine involvement in episodic luteinizing hormone release in adult ovariectomized rats. *Endocrinology*1976; 99: 651-658.

Dudley RE, Gammal LM and Klaassen CD. Cadmium-induced hepatic and renal injury in chronically exposed rats: likely role of hepatic cadmium-metallothionein in nephrotoxicity. *Toxicol Appl Pharmacol* 1985; 77: 414-426.

Dufourny L and Skinner DC. Influence of estradiol on NADPH diaphorase/neuronal nitric oxide synthase activity and colocalization with progesterone or type II glucocorticoid receptors in ovine hypothalamus. *Biol Reprod* 2002; 67: 829-836.

Elinder CG, Kjellstrom T, Friberg L, Lind B and Linman L. Cadmium in kidney cortex, liver, and pancreas for Swedish autopsies. *Arch Environ Health* 1976; 31: 292-302.

Ellis GB, Desjardins C and Fraser HM. Control of pulsatile LH release in male rats. *Neuroendocrinology* 1983; 37: 177-183.

El-Maraghy SA, Gad MZ, Fahim AT and Hamdy MA. Effect of cadmium and aluminum intake on the antioxidant status and lipid peroxidation in rat tissues. *J Biochem Mol Toxicol* 2001; 15: 207-214.

El-Missiry MA and Shalaby F. Role of β-carotine in ameliorating the cadmium induced oxidative stress in rat brain and testis. *J Biochem Mol Toxicol* 2000; 14: 238-243.

EPA. Lead and compounds (inorganic), Integrated Risk Information System (IRIS); 2001.

Evans JJ and Tulloch S. Effects of administration of oxytocin in association with gonadotrophin-releasing hormone on luteinizing hormone levels in rats *in vivo*. *Peptides* 1995; 16: 145–150.

Evans JJ, Hurd SJ and Mason DR. Oxytocin modulates the luteinizing hormone response of the rat anterior pituitary to gonadotropin-releasing hormone. *J Endocrinol* 1995: 145: 113–119.

Evans JJ. Peptides Interact in Gonadotropin Regulation. *Arch Physiol Biochem* 2002; 110: 154-161.

Farris M. Cadmium toxicity: unique cytoprotective properties of α-tocopherol succinate in hepatocytes. *Toxicology* 1991; 69: 63-77.

Fiske CH and Subbarow Y. The colorimetric detection of phosphorus. *J Biol Chem* 1925; 66: 375-400.

Flanagan PR, McLellan J, Haist J, Cherian MG, Chamberlain MJ and Valbar LS. Increased dietary cadmium absorption in mice and human subjects with iron deficiency. *Gastroenterology* 1978; 72: 841-846.

Floreani M, Bonetti AC and Carpenedo F. Increase of Na^+K^+ATPase activity in intact brain synaptosomes after their interaction with phosphatidylserine vesicles. *Biochem Biophys Res Comm* 1981; 101: 1337-1344.

Forrest-Owen W, Willars GB, Nahorski SR, Assefa D, Davidson JS, Hislop J and McArdle CA. The lack of gonadotropin releasing hormone receptor desensitisation in alpha T3-1 cells is not due to GnRH receptor reserve or phosphatidyl inositol 4,5-biphosphate pool size. *Mol Cell Endocrinol* 1999; 147: 161-173.

Foulkes EC. Absorption of cadmium. In: Foulkes, E.C., ed. Handbook of Experimental Pharmacology. Vol. 80, Springer-Verlag, Berlin, 1986; 75-100.

Frenkel GD and Middleton C. Effects of lead acetate on DNA and RNA synthesis by intact HeLa cells, isolated nuclei and purified polymerases. *Biochem Pharmacol* 1987; 36: 265-268.

Friberg L, Piscator M, Nordberg GF and Kjellstrom T. Cadmium in environment. 2nd. Ed. CRC Press, Boca Raton, FL; 1974.

Gong Q and Hart BA. Effect of thiols on cadmium induced expression of metallothionein and other oxidant stress genes in rat lung epithelial cells. *Toxicology* 1997; 119: 179-191.

Gershanik JJ, Brooks GG and Little JA. Blood lead values in pregnant women and their offspring. *Am J Obstet Gynecol* 1974; 119:508-511.

Gilbert SG and Rice DC. Low-level lifetime lead exposure produces behavioural toxicity (spatial discrimination reversal) in adult monkeys. *Toxicol Appl Pharmacol* 1987; 91: 484-490.

Goebel C, Kirchhoff K, Wasmuth H, Flohe S, Elliott RB and Kolb H. The gut cytokine bal-ance as a target of lead toxicity. *Life Sci* 1999; 64(24): 2207-2214.

Gorski JP and Kasper CB. Purification and properties of microsomal UDP-Glucoronyl transferase from rat liver. *J Biol Chem* 1977; 252: 1336-1343.

Gorski RA. Sexual differentiation of the brain. In: Krieger DT, Hughes JC, eds. Neuroendocrinology. Sunderland, MA: Sinauer Associates, 1980; 215-222.

Gorski RA. Steroid induced sexual characteristics the brain. In: Muller EE, MacLeod RM, eds. Neuroendocrine Perspectives. Vol. 2 Amsterdam: elsvier Biomedical, 1983: 1-35.

Goyer R. Toxic effects of metals. In: Amdur, M.O., J.D. Doull and C.D. Klaassen, Eds. Casarett and Doull's Toxicology. 4th ed. Pergamon Press, New York. 1991; 623-680.

Granick JL, Sassa S, Granick S, Levere RD and Kappas A. Studies in lead poisoning. II. Correlation between the ratio of activated to inactivated delta-aminolevulinic acid dehydratase of whole blood and the blood lead level. *Biochem Medicine* 1973; 8: 149-159.

Greenwood FC, Hunter WH and Glover JS. The preparation of ^{131}I labeled human growth hormone of high specific radioactivity. *Biochem J* 1963; 89: 114-123.

Grundker C, Gunthert AR, Westphalen S and Ernons G. Biology of the gonadotropin releasing hormone system in gynecological cancers. Eur J Endocrinol 2002; 146: 1-14.

Gupta S, Bhosle S and Pandya K. Effect of simultaneous low level exposure of Pb and Cd on δ-ALAD and acetylcholinesterase activity in rats. *Indian J Exp Biol* 1994; 32: 819-821.

Gwozdzinski K. A spin label of the action of cupric and mercuric ions on human red blood cells. *Toxicology* 1991; 65: 315-323.

Halliwell B and Gutteridge JMC. Protection against oxidants in biological systems: the superoxide theory of oxygen toxicity. In Free Radical in Biology and Medicine. Ed. Halliwell, B., Gutteridge, J.M.C., 1989; 86-123 Clarendon Press, Oxford.

Hannan SE, Ocie Harris J, Sheridan NP and Patel JM. Cigarette smoke alters plasma membrane fluidity of rat alveolar macrophages. *Am Rev Respir Dis* 1989; 140: 1668-1673.

Hans JS, Rodgers JS, Bantle JA and Cheng Y. Lead inhibition of DNA-binding mechanism of CYS2-HIS2 zinc finger proteins. *Mol Pharm* 1999; 56: 982-988.

Han S, Pfizenmaier DH, Garcia E, Eguez ML, Ling M, Kemp FW and John D. Effects of lead exposure before pregnancy and dietary calcium during pregnancy on fetal development and lead accumulation. *Environ Health Perspect* 2000; 108.

Harlan WR, Landis JR, Schmouder RL, Goldstein NG and Harlan LC. Blood lead and blood pressure. Relationship in the adolescent and adult US population. *JAMA* 1985; 253:530-534.

Hart DT and Borowitz JL. Adrenal catecholamine release by divalent mercury and cadmium. *Arch Int Pharmacodyn Ther* 1974; 109: 94-99.

Hartwig A and Beyersmann D. Comutagenecity and inhibition of DNA repair by metal ions in mammalian cells. *Biol Trace Elem Res* 1989; 21: 359-365.

Hartwig A, Schelpegrell R and Beyersmann D. Indirect mechanism of lead induced genotoxicity in cultured mammalian cells. *Mutat Res* 1990; 241: 75-82.

Hassoun EA and Stohs SJ. Cadmium induced production of superoxide anion and nitric oxide, DNA single strand breaks and lactate dehydrogenase leakage in J774A.1 cell cultures. *Toxicology* 1996; 112: 219-226.

Hazelhoff Roelfzema W, Zahn-Breidenbach U and Copius Peerboom-Stegeman JH. Light and electron microscopic investigation of the rat placenta after cadmium administration during pregnancy. *Anat Embryol (Berl)* 1988;178(4):345-51

Hew KW, Heath GL, Jiwa AH and Welsh MJ. Cadmium in vivo causes disruption of tight junction-associated microfilaments in rat Sertoli cells. *Biol Reprod* 1993; 49(4): 840-849.

Hiderbrand DC, Der R, Griffit WT and Fahim MS. Effect of lead acetate on reproduction. *Am J Obstet Gynecol* 1973; 115: 1058-1065.

Himeno S, Yanagiya T, Enomoto S, Kondo Y and Imura N. Cellular cadmium uptake mediated by the transport system for manganese. *Tohoku J Exp Medicine* 2002; 196: 43-50.

Hinkle PM, Kinsella PA and Osterhoudt KC. Cadmium uptake and toxicity via voltage sensitive calcium channels. *J Biol Chem* 1987; 262: 16333-16337.

Hirning LD, Fox AP, McCleskey EW, Olivera BM, Thayer SA, Miller RJ and Tsien RW. Dominant role of N-type Ca2+ channels in evoked release of norepinephrine from sympathetic neurons. *Science* 1988; 239: 57-60.

Hsu PC, Liu MY, Hsu CC, Chen LY and Guo YL. Effects of vitamin E/C on reactive oxygen species related lead toxicity in the rat sperm. *Toxicology* 1998; 128: 169-179.

Hsu SY, Kudo M, chen T, Nakabayashi K, Bhalla A, van der Spek PJ, van Duin M and Hsuch AJ. The three subfamilies of leucine rich repeat containing G protein coupled receptors (LGR): identification of LGR6 and LGR7 and the signalling mechanism for LGR7. *Mol Endocrinol* 2000; 14: 1257-1271.

Huang BM, Tsai ML, Li PH, Yang HY and Liu MY. The effects of lead on StAR protein expression and steroidogenesis in MA-10 cells. *Biol Reprod* 1997; 56S:201.

Hugo EA. Catalase. In Methods of Biochemical Analysis. Vol. III, ed.Bergmeyer, H.U., Bergmeyer, J., Grabt, M., 1987; 277-282: VCH Publishers, New York.

Hussain T, Shukla GS and Chandra SV. Effects of cadmium on superoxide dismutase and lipid peroxidation in liver and kidney of growing rats: in vivo and in vitro studies. *Pharmacol Toxicol* 1987; 60: 355-359.

IARC. IARC monographs on the evaluation of carcinogenic risks to humans. Overall evaluations of carcinogenicity: An updating of IARC monographs volumes 1 to 42. Supplement 7, IARC, ISBN 92 832 1411 0, 1987; 230-232.

International Agency for Research on Cancer. Cadmium, nickel, some epoxides, miscellaneous industrial chemicals and general considerations on volatile anaesthetics. Lyon, 1976: 39-74 (IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Vol. 11).

Jadhav AL and Kala SV. Effects of subchronic exposure to low levels of lead on central dopaminergic mechanisms. *Toxicology* 1994; 14: 293.

Jarrar BM and Mahmoud ZN. Histochemical demonstration of changes in the activity of hepatic phosphatases induced by experimental lead poisoning in male white rats (Rattus norvegicus). *Toxicol Ind Health* 2000; 16: 7-15.

Johnston MV and Goldstein GW. Selective vulnerability of the developing brain to lead. *Curr Opin Neurol* 1998; 11(6): 689-693. 392.

Kakkar P Das B and Vishwanath PN. A modified spectrophotometric assay of superoxide dismutase. *Indian J Biochem Biophys* 1984; 21: 130-132.

Kala S and Jadhav AL. Region-specific alterations in dopamine and serotonin metabolism in brains of rats exposed to low levels of lead. *Neurotoxicology* 1995; 16: 297-308.

Kala S, Williams-Johnson M and Jadhav AL. Neurochemical responses to subchronic lead exposure. *Trans American Soc Neurochem* 1994; 25: 288.

Kaplan P, Recay P, Lehotsky J and Mezesova V. Change in fluidity of brain endoplasmic reticulam membranes by oxygen free radicals: a protective effect of stobadine, α-tocopherol acetate, and butylated hydroxytoluene. *Neurochem Res* 1995; 20: 815-820.

Karmakar R, Banik S, Bndyopadhyay S and Chatterjee M. Cadmium induced alterations of hepatic lipid peroxidation, glutathione S-transferase activity and reduced glutathione level and their possible correlation with chromosomal aberration in mice: a time course study. *Mutation Research* 1998; 397: 183-190.

Kasprzak KS and Poirier LA. Effects of calcium and magnesium acetates on tissue distribution of carcinogenic doses of cadmium chloride in Wistar rats. *Toxicology* 1985; 34: 221-230.

Kempinas WG, Farvaretto ALV, Melo VR, Lamano Carvalho TL, Petenusci SO and Olivera-Filho RM. Time dependent effects of lead on rat reproductive functions. *J Appl Toxicol* 1994; 14: 427-433.

Khan-Dawood FS and Dawood MY. Baboon corpus luteum: the effect of melatonin on *in vitro* progesterone production. *Fertil Steril* 1993; 59: 896–900.

Klaassen CD. Effect of metallothionein on hepatic disposition of metals. *Am J Physiol* 1978; 234:E47-E53.

Klinefelter GR and Hess RA. Toxicology of the male excurrent ducts and accessory glands. In *Reproductive and Developmental Toxicology*, ed. K.S. Korach., 1998; 553-591 Marcel Dekker, New York.

Kofod P, Bauer R, Danielsen E, Larsen E and Bjerrum MJ. 113 Cd-NMR investigation of a cadmium-substitution copper, zinc containing superoxide dismutase from yeast. *Eur J Biochem* 1991; 198: 607-611.

Korpela H, Loueniva R, Yrjanheikki E and Kauppila A. Lead and cadmium concentrations in maternal and umbilical cord blood, amniotic fluid, placenta and amniotic membranes. *Am J Obstet Gynecol* 1986; 155: 1086-1089.

Krajnc EI et al. Integrated criteria document. Cadmium—Effects. Appendix. Bilthoven, Netherlands, National Institute of Public Health and Environmental Protection. 1987 (Report no. 758476004).

Kuhnert, BR, Kuhnert P, Debonne S and Williams TG. The relationship between cadmium, zinc and birth weight in pregnant women who smoke. *Am J Obstet Gynecol* 1987; 157:1247-51.

Lafuente A and Esquifino AI. Cadmium effects on hypothalamic activity and pituitary hormone secretion in male. *Toxicol Lett* 1999; 110: 209-218.

Lafuente A, Blanco A, Marquez N, Alvarez-Damanuel E and Esquifino AI. Effects of acute and subchronic cadmium administration on pituitary hormone secretion in rat. *J Physiol Biochem* 1997; 53: 265-270.

Lafuente A, Marquez N, Piquero S and Esquifino AI. Cadmium affects the episodic luteinizing Hormone secretion in male rats: possible age dependent effects. *Toxicol Lett* 1999; 104: 27-33.

Lafuente A, Marquez N, Perez-Lorenzo M, Pazo D and Esquifino AI. Pubertal and postpubertal cadmium exposure differentially affects the hypothalamic-pituitary-testicular axis function in the rat. *Food Chem Toxicol* 2000; 38: 913-923.

Lagerkvist BI, Sandberg S, Frech W, Jin T and Nordberg GF. Is placenta a good indicator of cadmium and lead exposure? *Arch Environ Health.* 1996; 51(5): 389-94.

Lancranjan I. Reproductive ability of workmen occupationally exposed to lead. *Arch Environ Health* 1975; 30:396-401.

Laskey JW and Phelps PV. Effect of cadmium and other metal cations *in vitro* Leydig cell testosterone production. *Toxicol Appl Pharmacol* 1991; 108: 296-306.

Lawton L and Donaldson WE. Lead-induced tissue fatty acid alterations and lipid peroxidation. *Biol Trace Elem Res* 1991; 28, 83- 97.

Leffler HH and Mc Dougald CH. Estimation of cholesterol in serum by means of improved techniques. *Am J Clin Path* 1963; 39: 311-314.

Levin AA and Miller RK. Fetotoxicity of cadmium in the rat: decreased uteroplacenta blood flow. *Toxicol Appl Pharmacol* 1981; 58: 297-306.

Lopez F.J, Dominguez JR, Sanchez-Franco F and Negro-Vilar A. Role of dopamine and vasoactive intestinal peptide in the control of pulsatile prolactin secretion. *Endocrinology* 1989; 124: 527-535.

Lorenson MY, Robson DL and Jacobs LS. Divalent cation inhibition of hormone release from isolated adenohypophysial secretory granules. *J Biol Chem* 1983; 258: 8618-8622.

Lossio G, Sanchez JC, Wettstein R and Hochstrasser DF. Spermatocytes and round spermatids of rat testis: the difference between in vivo and iv vitro protein pattern. *Electrophoresis* 1997; 18: 548-552.

Lucis OJ, Lucis R and Shaikh ZA. Cadmium and zinc in pregnancy and lactation. *Arch Environ Health* 1972; 25: 14-22.

Markovac J and Goldstein GW. Lead activates protein ki9nase C in immature rat brain microvessels. *Toxicol Appl Pharmacol* 1988; 96: 14-23.

Marks GS. Exposure to toxic agents: the heme biosynthetic pathway and hemoproteins as indicator. *Crit Rev Toxicol* 1985; 15(2): 151-179.

Marquez N, Alvarez-Demanuel E, Piquero S, Esquifino AI and Lafuente A. Chronic alternate or daily cadmium exposure differentially affects its accumulation within the tissues. *Toxicol Lett Suppl* 1998; 1/95: 125.

Marshall JC and Kelch RP. Gonadotropin releasing hormone: pulsatile secretion in the regulation of reproduction. *N Engl J Med* 1986; 315: 1459-1468.

Matkovics B, Sasvari M, Kotorman M, Varga IS, Hai DQ and Varga C. Further prove on oxidative stress in alloxan diabetic rat tissues. *Acta Physiol Hung* 1997-98; 85: 183 – 192.

Matsumoto H. Noguchi J, Takatsu Y, Horikoshi Y, Kumano S, Ohtaki T, Kitada C, Itoh T, Onda H, Nishimura O and Fujino M. Stimulation effect of galanin-like peptide (GALP) on luteinizing hormone-releasing hormone-mediated luteinizing hormone (LH) secretion in male rats. *Endocrinology* 2001; 142:3693-3696.

McArdle CA, Franklin J, Green L and Hislop JN. The Gonadotropin-Releasing Hormone Receptor: Signalling, Cycling and Desensitisation. *Arch Physiol Biochem* 2002, 110: 113-122

McMichael AJ, Vimpani GV, Robertson EF, Baghurst PA and Clark PD. The Port Pirie cohort study: maternal blood lead and pregnancy outcome. *J Epidemiol Community Health* 1986; 40:18-25.

Meiattini F. Inorganic peroxides. In: Bernt E, Bergmeyer H-U (eds) *Methods of Enzymatic Analysis* 1985; 556-571 Academic Press, New York.

Milenrowicz H, Zalewski J, Geneja R, Milnerowicz-Nabzdvk and Woyton. Levels of Cd, Pb in blood and Zn, Cu, Cd, Pb in amniotic fluid of tobacco smoking women during pregnancy complicated oligohydramnios or premature rupture of membranes. *Ginekol Pol* 2000; 71(4): 311-316.

Milos M, Comte M, Schaer JJ and Cox JA. Evidence for capital and six auxiliary cation-binding sites on calmodulin: divalent cation interactions monitored by direct binding and microcalorimetry. *J Inorg Biochem* 1989; 36: 11-25.

Minnema DJ, Michaelson IA and Cooper GP. Calcium effects and neurotransmitter release from rat hippocampal synaptosomes exposed to lead. *Toxicol Appl Pharmacol* 1988; 92: 351-357.

Mishra OP, Delivoria-Papadopoulos M, Cahillane G and Wagerle LC. Lipid peroxidation as the mechanism of modification of the affinity of the Na^+K^+ATPase active sites for ATP, K^+, Na^+ and strophanthidin in vitro. *Neurochem Res* 1989; 14: 845- 851.

Moller JV, Anderson JP and Le Maire M. The sarcoplasmic reticulum $Ca2^+$ ATPase. *Mol Cell Biochem* 1982; 42: 83-107.

Monterio HP, Bechara EJH and Abdalla DSP. Free radical involvement in neurological porphyries and lead poisoning. *Mol Cell Biochem* 1991; 103: 73-83.

Moore MR. Haematological effects of lead. *Science Total Environ* 1988; 71: 419-431.

Moore MR, Goldberg A, Pocock SJ, Meredith A, Stewart IM, MacAnespie H, Lees R and Low A. Some studies of maternal and infant lead exposure in Glasgow. *Scott Med J* 1982; 27:113-122.

Moreira EG. Rosa GJ, Barros SB, Vassilieff VS and Vassilieff I. Antioxidant defense in rat brain regions after developmental lead exposure. *Toxicology* 2001; 169: 145-151.

Murashow BF. Functional state of the adrenal cortex in chronic poisoning with tetraethyl lead. *Gigiena Truda I Prof. Zabol* 1966; 15: 46-47.

Mushak P, Davis JM, Crocetti AF and Grant LD. Prenatal and postnatal effects of low-level lead exposure: integrated summary of a report to the U.S. Congress on childhood lead poisoning. *Environ Res* 1989, 50:11-36.

Nation JR, Frye GD, VonStultz J and Bratton GR. Effects of combined lead and cadmium exposure: Changes in schedule-controlled responding and in dopamine, serotonin and their metabolites. *Behavioral Neuroendocrinol* 1989; 103: 1108-1114.

Nayak BN, Ray M, Persaud TV and Nigli M. Embryotoxicity and in vivo cytogenetic changes following maternal exposure to cadmium chloride in mice. *Exp Pathol* 1989; 36(2): 75-80.

Needleman HL, Gunnor C, Leviton A, Reed R, Peresie H, Maher C and Barrett P. Deficits in psychologic and classroom performance of children with elevated dentine lead levels. *N Engl J Med* 1979; 300: 689-95.

Neill JD. Mammalian gonadotropin releasing hormone (GnRH) receptor subtypes. *Arch Physiol Biochem* 2002; 110: 119-126.

Neshkow NS. Effects of chronic poisonng with ethylated gasoline on spermatogenesis and sexual function in males. *Gigiena Truda I Prof. Zabol* 1971; 15: 45-46.

Nigam D, Shukla GS and Agarwal AK. Glutathione depletion and oxidative damage in mitochondria following exposure to cadmium in rat liver and kidney. *Toxicol Let* 1999; 106: 151-157.

Nihei MK and Guilarte TR. NMDAR-2A sub-unit protein expression is reduced in the hippocampus of rats exposed to Pb2+ during development. *Brain Res Mol Brain Res* 1999; 66(1- 2): 42-49.

Nivsarkar M, Cherian B and Patel S. A regulatory role of sulfhydryl groups in modulation of sperm membrane conformation by heavy metals: sulfhydryl groups as markers for infertility assessment. *Biochem Biophys Res Commun* 1998; 247: 716-718

Nordberg G F, Kjellstrom T and Nordberg M. Kinetics and metabolism . In: Friberg, L., C.G. Elinder, T. Kjellstrom and G.F. Nordberg, eds. Cadmium and Health: A toxicological and epidemiological appraisal. Vol. 1. Exposure, dose, and metabolism. CRC Press, Boca Raton, FL., 1985; 103-178.

Ochi T and Ohsawa M. Induction of 6-thioguanine resistant mutants and single strand scissions of DNA by cadmium chloride in cultured Chinese hamster cells. *Mutat Res* 1983; 111: 69-78.

Ochi T, Mogi M, Watanabe M and Ohsawa M. Induction of chromosomal aberrations in cultured Chinese hamster cells by short term treatment with cadmium chloride. *Mutat Res* 1984; 137: 103-109.

Odenbro A, Orberg J and Lundqvist E. Progesterone and estrogen concentrations in plasma during blastocyte implantation in mice exposed to triethyl lead. *Acta Pharmacol et Toxicol* 1982; 50: 241-245.

Ohkawa H, Ohishi N and Yagi K. Assay for lipid peroxidation in animal tissue by thiobarbituric acid reaction. *Anal Biochem* 1979; 95: 351-.

Oldiges H, Hochrainer P and Glaser U. Long-term inhalation study with Wistar rats and four cadmium compounds. *Toxicol Environ Chem* 1989; 19: 217-222.

Omura T and Sato R. The carbon monoxide binding pigment of liver microsomes II. Solubilisation, purification and properties, *J Biol Chem* 1964; 239: 2379-2385.

Onosaka AI and Cherian MG. The induced synthesis if metallothionein in various tissues of rat in response to metals. I. Effect of repeated injection of cadmium salts. *Toxicology* 1981; 22: 91-101.

Oortgiesen M, Leinders T, Van Kleef RGDM and Vijverberg HPM. Differential neurotoxicological effects of lead on voltage dependent and receptor operated ion channels. *Neurotoxicology* 1993; 14: 87-96.

Ouig D. Cysteine metabolism and metal toxicity. Alter Med Rev 1998; 3: 262-270.

Paksy K, Naray M, Varga B, Kiss I, Folly G and Ungvary G. Uptake and distribution of Cd in the adrenals, and pituitary in pseudopregnant rats: Effect of acute cadmium on progesterone serum levels. *Environt Res* 1990; 51: 83-90.

Paksy K, Varga B, Horwath E, Tatrai E and Ungvary G. Acute effects of cadmium on preovulationary serum FSH, LH and prolactin levels on ovulation and ovarian hormone secretion in estrus rats. *Reprod Toxicol* 1989; 3: 241-247.

Pau KY, Berria M, Hess DL and Spies HG. Preovulatory gonadotropin releasing hormone surge in ovarian intact rhesus macaques. *Endocrinology* 1993; 133: 1650-1656.

Peraza, MA, Ayala-Fierro F, Barber DS Casarez E and Rael LT. Effects of micronutrients on metal toxicity. *Environ Health Perspect* 1998; 106Sup 1(1): 203-16.

Perrino BA and Chou IN. Calmodulin modulation of adverse effects of Cd on microtubules and tubulin polymerization in vitro. *Toxicol in vitro* 1989; 3: 227-234.

Piasek M, Laskey JW, Kostial K and Blanusa M. Assessment of steroid disruption using cultures of whole ovary and/or placenta in rat and in human placental tissue. *Int Arch Occup Environ Health* 2002; 75 Suppl: S36-44.

Pirkle JL, Schwartz J, Landis JR and Harlin WR. The relationship between blood lead levels and blood pressure and its cardiovascular risk implications. *Am J Epidemiol* 1985; 121: 246-258.

Poirier A, DeLean A, Pelletier G, Lemay A and Labris F. Purification of adenohypophysial plasma membrane and the properties of associated adenylate cyclase. *J Biol Chem* 1974; 249: 316-322.

Poirier LA, Kasprzak KS, Hoover KL and Wenk ML. Effects of calcium and magnesium acetates on the carcinogenicity of cadmium chloride in Wistar rats. *Cancer Research* 1983; 43: 4575-4581.

Pond WG and Walker EF. Effect of dietary Ca and Cd level of pregnant rats on reproduction and on dam and progeny mineral concentrations. *Proc Soc Exp Biol Med* 1975; 148: 665-668.

Popenoe EA and Schmaeler MA. Interaction of human polymerase β with ions of copper, lead and cadmium. *Arch Biochem Biophys* 1979; 196: 135-138.

Pounds JG, Long GJ and Rosen JF. Cellular and molecular toxicity of lead in bone. *Environ Health Perspect* 1991; 91:17-32.

Prigge E. Inhalative cadmium effects in pregnant and fetal rats. *Toxicology* 1978; 10:297-309.

Rancs NE and Uswandi SV. Gonadotropin releasing hormone gene expression is increased in the medial basal hypothalamus of postmenopausal women. *J Clin Endocrinol Metabol* 1996; 81: 3540-3546.

Rastogi RB, Merali Z and Singhal RL. Cadmium alters behavior and the biosynthetic capacity of catecholamines and serotonin in neonatal rat brain. *J Neurochem* 1977: 28: 789-794.

Rehm S and Waalkes MP. Cadmium induced ovarian toxicity in hamsters, mice and rats. *Fund Appl Toxicol* 1988; 29: 249-256.

Reitman S and Frankel S. Colorimetric method for determination of serum transaminase activity. *Am J Clin Pathol* 1957; 28: 56-58.

Rhodes RC and Randell RD. Effect of several biogenic amines on *in vitro* progesterone secretion by the bovine corpus luteum. *Comp Biochem Physiol* 1982; 72C: 113–116.

Ribarov SR, Benov LC, Marcova VI and Benchev IC. Hemoglobin catalyzed lipid peroxidation in the presence of mercuric chloride. *Chem Biol Interact* 1983; 45: 105-112.

Rice DC. Primate research: relevance to human learning and development. *Dev Pharmacol Therapeut* 1987; 10: 314-327.

Rice DC and Karpinski KF. Lifetime low-level lead exposure produces deficits in delayed alternation in adult monkeys. *Neurotoxicol Teratol* 1988; 10: 207-214.

Richards JS, Fitzpatrick SL, Clemens JW, Morris JK, Alliston T and Sirois J. Ovarian cell differentiation: a cascade of multiple hormones signals and regulated genes. In: Bardin CW (eds.), recent Progress in Hormone Research. San Diago: Academic Press; 1995: 50: 223-254.

Rikans LE and Yamano T. Mechanisms of cadmium mediated acute hepatotoxicity. *J Biochem Mol Toxicology* 2000; 14: 110-117.

Ritz E, Mann J and Wiecek A. Does lead play a role in the development of renal insufficiency? *Contributions to nephrology* 1988; 64: 43-48.

Rohn TT, Hinds TR and Vincenzi FF. Inhibition of Ca^{2+} pump ATPase and the $Na^{+}K^{+}$ pump ATPase by iron generated free radicals. Protection by 6,7-dimethyl-2, 4- di-1-pyrrolidinyl-7H-pyrrolo (2,3d) pyrimidine sulfate (U-89843D), a potent novel antioxidant/free radical scavenger. *Biochem Pharmacol* 1996; 51: 471-476.

Ronis MJJ, Badger TM, Shema S, Roberson PK and Shaikh F. Reproductive toxicity and growth effects in rats exposed to lead at different periods during development. *Toxicol Appl Pharmacol* 1996; 136: 361-371.

Ronis MJJ, Gandy J and Badger T. Endocrine mechanisms underlying reproductive toxicity in the developing rat chronically exposed to dietary lead. *J Toxicol Environ Health* 1998; 54: 77-99.

Ros JPM and Slooff W. eds. Integrated criteria document cadmium. Bilthoven, Netherlands, National Institute of Public Health and Environmental Protection, 1987 (Report no. 758476004).

Rosen JF, Chesncy RW, Hamstra A, Deluca HF and Mahaffey KR. Reduction in 1,25 dihydroxy vitamin D in children with increased lead absorption. *N Engl J Med* 1980; 302: 1128-1131.

Rossman TG. Cloning genes whose levels of expression are altered by metals: implications for human health research. *Am J Indust Med* 2000; 38: 335-339.

Roy NK and Rossman TG. Mutagenesis and comutagenesis by lerad compounds. *Mutat Res* 1992; 298: 97-103.

Samarawickrama GP and Webb M. Acute effects of cadmium on the pregnant rat and embryo-fetal development. *Environ Health Perspect* 1979; 28: 245-249.

Samarawickrama GP and Webb M The acute toxicity and teratogenicity of cadmium in the pregnant rat. *J Appl Toxicol* 1981; 1(5): 264-269.

Sandhir R, Julka D and Gill KD. Lipid peroxidative damage on lead exposure in rat brain and its complications on membrane bound enzymes. *Pharmacol Toxicol* 1994; 74: 66-71.

Sarkar B. Metal replacement in DNA-binding zinc finger proteins and its relevance to mutagenicity and carcinogenicity through free radical generation. *Nutrition* 1995; 11(5 Suppl): 646- 649.

Sarkar S, Yadav P and Bhatnagar D. Lipid peroxidative damage on cadmium exposure and alterations in antioxidant system in rat erythrocytes: a study with relation to time. *Biometals* 1998; 11: 153-157.

Savolainen KM, Loikkanen J, Eerikainen S and Naarala J. Glutamate-stimulated ROS production in neuronal cultures: interactions with lead and the cholinergic system. *Neurotoxicology* 1998; 19(4-5): 669-674.

Schatter D. Fluidity and function of hepatocyte plasma membrane. *Hepatology* 1984; 4: 140-151.

Schlegel BP, Jez JM and Penning TM. Mutagenesis of 3α-hydroxysteroid dehydrogenase reveals a "push-pull" mechanism for proton transfer in aldo-keto reductases. *Biochemistry* 1988; 37: 3538-3548.

Schneider WC. Determination of nucleic acids in tissues by pentose analysis. *Methods Enzymol* 1957; 3: 680-684.

SCOEL (EU Scientific Committee on Occupational Exposure Limits), Recommendation from Scientific Committee on Occupational Exposure Limits for Lead and its Inorganic Compounds. SCOEL/SUM/83H. June 2000.

Seifter S, Dayton S, Novic B and Muntwyler E. The estimation of glycogen with the anthrone reagent. *Arch Biochem* 1950; 25: 191-200.

Sevanian A, Wratten ML, Mcleod LL and Kim E. Lipid peroxidation and phosphatase A_2 activity in liposomes composed of unsaturated phospholipids: a structural basis for enzyme activation. *Biochim Biophys Acta* 1988; 961: 316-327.

Shafiq-ur-Rehman. Lead induced regional lipid peroxidation in brain. *Toxicol Lett* 1984; 21: 333-337.

Shaikh ZA, Blazka ME and Endo T. Metal transport in cells: Cadmium uptake by rat hepatocytes and renal cortical epithelial cells. *Environ Health Perspect* 1995; 103: 73-75.

Shaikh ZA, Vu TT and Zaman K. Oxidative stress as a mechanism of chronic cadmium induced hepatotoxicity and renal toxicity and protection by antioxidants. *Toxicol Appl Pharmacol* 1999; 154: 256-263.

Shellenberger MK and Gordon JH. A rapid, simplified procedure for simultaneous assay of norepinephrine, dopamine, and 5-hydroxytryptamine from discrete brain areas. *Anal Biochem* 1971; 39: 356-372.

Sherwood NM, Lovejoy DA and Coe IR. Origin of mammalian gonadotropin releasing hormones. *Endocrine Reviews* 1993; 14: 241-254.

Shibasaki T, Matsumoto H, Gomi H, Ohno I, Ishimoto F and Sakai O. Effects of a heptoprotective agent and a hepato secreting chelator on cadmium induced nephrotoxicity in Syrian hamsters. *Biol Trace Elem Res* 1996; 52: 1-9.

Shih TM and Hanin I. Effects of chronic lead exposure on levels of acetylcholine and choline and acetylcholine turnover in rat brain areas in vivo. *Psychopharmacology* 1978; 58: 263-266.

Shinitzki M and Barenholz Y. Fluidity parameters of lipid regions determined by fluorescence polarization. *Biochim Biophys Acta* 1978; 515: 367-394.

Shivanandappa T and Venkatesh SA. Colorimetric assay method for 3β- Hydroxy-Δ^5-steroid dehydrogenase. *Anal Biochem* 1997; 254: 57-61.

Shivers BD, Harlan RE and Pfafff DW. Reproduction: the central nervous system role of luteinizing releasing hormone. In: Krieger DT, Brownstein MJ, Martin JB, eds. Brain Peptides. New York: John Wiley & Sons, 1983: 389-412.

Shukla GS and Chandra SV. Effect of interaction of Mn^{2+} with Zn^{2+}, Hg^{2+} and Cd^{2+} on some neurochemicals in rats. *Toxicol Lett* 1982; 10: 163-168.

Sirotkin AV. Serotonin influences hormone and cyclic nucleotide release by granulosa cells isolated from porcine ovaries. *Biogenic Amines* 1995; 11: 137–146.

Sirover MA and Loeb LA. Metal activation of DNA synthesis. *Biochem Biophys Res Comm* 1976; 70: 812-817.

Smith RM. Griel LC, Muller LD, Leach RM and Baker DE. Effects of dietary cadmium chloride throughout gestation on blood and tissue metabolites of primigravid and neonatal dairy cattle. *J Anim Sci* 1991; 69: 4078-4087.

Sokol RZ. Hormonal effects of lead acetate in male rat. Mechanism of cation. *Biol Reprod* 1987; 37: 1135-1138.

Sorell TL and Graziano GH. Effect of oral cadmium exposure during pregnancy on maternal and fetal zinc metabolism in the rat. *Toxicol Appl Pharmacol* 1990; 1:102(3): 537-45.

Sowa B and Steibert E. Effect of oral cadmium administration to female rats during pregnancy on zinc, copper and iron content in placenta, foetal liver, kidney, intestine, and brain. *Arch Toxicol* 1985; 56(4): 256-62.

Spicer LJ. Leptin: a possible metabolic signal affecting reproduction. Domestic Animal *Endocrinology* 2001; 21: 251-270.

Spinder T. Spijkstra JJ. Gooren J, Hompes PG and van Kessel H. Effects of long term testosterone administration on gonadotropin secretion in agonadal female ton male

transsexuals compared with hypogonadal and normal women. *J Clin Endocrinol Metab* 1989; 68: 200-207.

Splett CL, Scheffen JR, Desotelle JA, Plamann V and Bauer-Dantoin AC. Galanin enhancement of gonadotropin-releasing hormone-stimulated luteinizing hormone secretion in female rats is estrogen dependent. *Endocrinology* 2003; 144: 484-490.

Stanfield JP. The blood supply of the human pituitary gland. *J Anat* 1960; 94: 257-263.

Stanimirovic DB, Wong J, Ball R and Durkin JP. Free radical induced endothelial membrane dysfunction at the site of blood brain barrier: relationship between lipid peroxidation, $Na^{+}K^{+}$ATPase activity and ^{51}Cr release. *Neurochem Res* 1995; 20: 1417-1427.

Synder RD. Role of active oxygen species in metal induced DNS strand breakage in human diploid fibroblasts. *Mutat Res* 1988; 193: 237-246.

Synder SH, Axelrod J and Zweig M. A sensitive and specific fluorescence assay for tissue serotonin. *Biochem Pharmacol* 1965; 14: 831-835.

Takahashi K, Imaeda T and Kawazoe Y. Effect of metal ions on the adaptive response induced by N'-methyl –N'- nitrosourea in Escherichia coli. *Biochem Biophys Res Comm* 1988; 157: 1124-1130.

Takahashi K, Susuki M, Sekiguchi M and Kawazoe Y. Effect of metal ions on transcription o0f the *ada* gene which encodes O6-methylguanine-DNA-methyl transferase of *Escherichia coli*. *Chem Pharm Bull* 1992; 40: 2483-2486.

Takenaka S, Oldiges H, Konig H, Hochrainer D and Oberdörster G. Carcinogenicity of cadmium chloride aerosols in Wistar rats. *J Natl Cancer Inst* 1983; 70: 367-373.

Tanaka E. Baba N, Toshida K and Suzuki K. Serotonin stimulates steroidogenesis in rat preovulatory follicles: involvement of 5-HT receptor. *Life Sciences* 1993; 53: 563–570.

Tanaka M, Matsusaka N, Yuyama A and Kobayashi H. Transfer of cadmium through placenta and milk in the mouse. *Radioisotopes* 1972; 21: 34-46.

Tappel AL. Lipid peroxidation and fluorescent molecular damage to membranes. In: Trump BF, Arstila A (eds) Pathology of cell membranes, 1975; 145-170 Academic Press, New York

Terranova PF, Uilenbroek JTJ, Saville L, Horst D and Nakamura Y. Serotonin enhances oestradiol production by hamster preovulatory follicles *in vitro:* effects of experimentally induced atresia. *J Endocrinol* 1990; 125: 433–436.

Thevenod F and Friedman JM. Cadmium mediated oxidative stress in kidney proximal tubule cells induces degradation of Na^+K^+ATPase through proteasomal and endo/lysosomal proteolytic pathways. *FASEB Journal* 1999; 13: 1751-1761.

Thiesen HJ and Bach B. Transition metals modulate DNA-protein interactions of Sp1 zinc finger domains with its cognate target site. *Biochem Biophys Res Comm* 1991; 176: 551-557.

Thompson JE, Legge RL and Barber RF. The role of free radicals in senescence and wounding. *New Phytol* 1987; 5: 317-344.

Trentini GP, Botticelli AR, Sannicol BC and Barbant SC. Decreased ovarian LH incorporation after melatonin treatment. *Hormone Metab Res* 1976; 8: 234–236.

Tsuchiya K, Seki Y and Sugita M. Organ and tissue cadmium concentration of cadavers from accidental deaths. Proc.17th Internat. Congress Occup. Health, Buenos Aires. 1972.

Turzillo AM, Juengel JL and Nett TM. Pulsatile GnRH increases concentrations of GnRH receptor mRNA and numbers of GnRH during luteolysis in the ewe. *Biol Reprod* 1995; 53: 418-423.

USAF. Cadmium. In: Installation Restoration Program Toxicology Guide, Vol. 5. Harry G. Armstrong Aerospace Medical Research Laboratory, Wright Patterson AFB, OH; 1990.

US Environmental Protection Agency. Air quality criteria for lead. Research Triangle Park, NC, 1986 (Report EPA-600/8-83/028F).

Varga B and Paksy K. Toxic effects of cadmium on LHRH-induced LH release and ovulation in rats. *Reprod Toxicol* 1991; **5**: 199-203.

Vahter M, Berglund M, Nermell B and Akesson A. Bioactivity of cadmium from shellfish and mixed diet in women. *Toxicol Appl Pharmacol* 1996; 136: 332-341.

Veldhuis JD and Klase PA. Role of calcium ions in the stimulatory actions of luteinizing hormon ein isolated ovarian cells: studies with divalent cation ionophores. *Biochem Biophys Res Comm* 1982; 104: 603-610.

Veldhuis JD. Mechanisms subserving hormone action in the ovary: role of calcium ions as assessed by steady state calcium exchange in cultured swine granulosa cells. *Endocrinology* 1987; 120: 445-449.

Verbost PM, Flik G, Pang PKT, Lock RAC and Bonga SEW. Cadmium inhibition of the erythrocyte Ca pump. A molecular interpretation. *J Biol Chem* 1989; 264: 5613-5615.

Waalkes MP and Poirier LA. Invitro cadmium-DNA interactions: Co- operativity of cadmium, magnesium and zinc. *Toxicol Appl Pharmacol* 1984; **75:** 539-546.

Waldron HA. The anemia of lead poisoning. A review. *Brit J Indust Med* 1966; 23: 83-100.

Wang XP and Foulkes EC. Specificity of acute effects of cadmium on renal function. *Toxicology* 1984; 30: 243-247.

Web M. Toxicological significance of metallothionein. *Experientia Suppl* 1987; 52: 109-134.

Webb M and Samarawickrama GP. Placental transport and embryonic utilization of essential metabolites in the rat at the teratogenic dose of cadmium. *J Appl Toxicol* 1981; 1(5): 270-7.

Webster WS. Cadmium induced fetal growth retardation in mice and the effects of dietary supplements of zinc, copper, iron and selenium. *J Nutr* 1979; 109: 1646-1651.

Williams BJ, Laubach DJ, Nechay BR and Steinland O P. The effects of cadmium on adrenergic neurotransmission in vitro. *Life Sciences* 1978; **23**: 1929-1934.

Wilson VS and LeBlanc GA. Endosulfan elevates testosterone biotransformation and clearance in CD-1 mice. *Toxicol Appl Pharmacol* 1998; 148: 158–168.

Winder C and Kitchen I. Lead neurotoxicity: A review of the biochemical, neurochemical, and drug induced evidence. *Programs in Neurobiology*1984; **22**: 59-87.

Whelton BD, Toomey JM and Bhattacharya MH. Cadmium^{109} metabolism in mice. IV. Diet versus maternal stores as a source of cadmium transfer to mouse fetuses and pups during gestation and lactation. *J Toxicol Environ Health* 1993; 40: 531-546.

WHO. Recommended health-based limits in occupational exposure to heavy metals. Geneva: 1980.

WHO. Air quality guidelines for Europe. European Series No. 23, WHO, 1987; 200-209.

WHO. Evaluation of Certain Food Additives and Contaminants. Forty-first Report of the Joint FAO/WHO Expert Committee on Food Additives. *WHO Technical Report Series*, Vol. 837, 1993; 53. World Health Organization, Geneva.

WHO. Environmental Health Criteria 165. Inorganic lead, WHO, ISBN 92-4-157165-9; 1995.

Wiebe JP, Barr KJ and Buckingham KD. Lead administration during pregnancy and lactation affects steroidogenesis and hormone receptors in the testes of offspring. *J Toxicol Environ Health* 1982; 10: 653-660.

Wohaieb S.A. and Godin D.V. Alterations in tissue antioxidant systems in the spontaneously diabetic (BB Wistar) rat. *Can J Physiol Pharmacol* 1987; 65: 2191 – 2195.

Wuttke W, Hancke JL, Hohn KG and Baumgarten HG. Effect of intraventricular injection of 5,7-dihydroxytryptamine on serum gonadotropins and prolactin. *Ann N Y Acad Sci* 1978; **305:** 423-436.

Xu C, Johnson J, Singh P, Jones M, Yan H and Carter C. In vivo studies of cadmium induced apoptosis in testicular tissue of rats and its modulation by a cheating agent. *Toxicology* 1996; 107: 1-8.

Yiin S and Lin TH. Lead catalysed peroxidation of essential unsaturated fatty acid. *Biol Trace Elem Res* 1995; 50: 167-172.

Yiin SJ, Sheu JY and Lin TH. Lipid peroxidation in rat adrenal glands after administration of cadmium and role of essential metals. *J Toxicol Environ Health Part A* 2001; 62: 47-56.

Zatt P, Zambenedetti P, Wittkowski W and Carpene E. Localization of metallothionein I-II immunoreactivity in bovine pituitary gland. *Life Sci* 2001; 70(6): 659-67.

Zawia NH, crumpton T, Brydie M, Reddy GR and Razmiafshari M. Disruption of the zinc finger domain: a common target that underlies many of the effects of lead. *Neurotoxicology* 2000; 21: 1069-1080.

Zelikoff JT, Li JH, Hartwig A, Wang AW, Costa M and Rossman TG. Genetic toxicology of lead compounds. *Carcinogenesis* 1988; 9: 1727-1732.

Zenick H, Hastings L, Goldsmith M and Niewenhuis RJ. Chronic cadmium exposure: relation to male reproductive toxicity and subsequent fetal outcome. *J Toxicol Environ Health* 1982; 9: 377-387.

Zhang H, Bai X and Zheng X. Distribution of lead in fetal rat tissue at different days of pregnancy. *Wei Sheng Yan Jiu* 1999; 28(2): 88-90.

Zylber-Haran EA, Gershman H, Rosenmann E and Spitz IM. Gonadotropin, testosterone and prolactin interrelationships in cadmium treated rats. *J Endocrinol* 1982; 92: 123-130.