

5. References

- Aaron CK, Howland MA. 1998. Insecticides: Organophosphates and carbamates. In: Goldfrank LR, Flomenbaum NE, Lewin NA, et al., eds. Goldfrank's toxicological emergencies. Stamford, CT: Appleton & Lange, 1429–1449.
- ACGIH. 2003. 2003 TLVs and BELs. Threshold limit values for chemical substances and physical agents. Biological exposure indices. American Conference of Governmental Industrial Hygienists, Cincinnati, OH.
- *Abd-Elraof TK, Dauterman WC, Mailman RB. 1981. *In vivo* metabolism and excretion of propoxur and malathion in the rat: Effect of lead treatment. *Toxicol Appl Pharmacol* 59:324–330.
- *Abdelsalam EB, Ford EJ. 1987. The effect of induced liver, kidney and lung lesions on the toxicity of levamisole and diazinon in calves. *J Comp Pathol* 97(6):619–627.
- Alam MK, Maughan OE. 1992. The effect of malathion, diazinon, and various concentrations of zinc, copper, nickel, lead, iron, and mercury on fish. *Biol Trace Elem Res* 34(3):225–236.
- Alexander BH, Checkowaym H, van Netten C, et al. 1996. Semen quality of men employed at a lead smelter. *Occup Environ Med* 53:411–416. (As cited in ATSDR 2005.)
- Allen P. 1994. Mercury accumulation profile and their modification by interaction with cadmium and lead in the soft tissues of the cichlid *Oreochromis aureus*. *Bull Environ Contam Toxicol* 53(5):684–692.
- Allen P. 1995a. Long-term mercury accumulation in the presence of cadmium and lead in *Oreochromis aureus* (Steindachner). *J Environ Sci Health B* 30(4):549–567.
- Allen P. 1995b. Soft-tissue accumulation of lead in the Blue Tilapia, *Oreochromis aureus* (Steindachner), and the modifying effects of cadmium and mercury. *Biol Trace Elem Res* 50(3):193–208.
- Amr M, Allam M, Osmaan AL, et al. 1993. Neurobehavioral changes among workers in some chemical industries in Egypt. *Environ Res* 63(2):295–300.
- Anderson H, Falk C, Hanrahan L, et al. 1998. Profiles of Great lakes critical pollutants: A sentinel analysis of human blood and urine. *Environ Health Perspect* 106(5):279–289.
- *ATSDR. 1997. Toxicological profile for chlorpyrifos. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

*Cited in text

*ATSDR. 2005. Toxicological profile for lead-Draft for Public Comment. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

*ATSDR. 1999. Toxicological profile for mercury. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry.

*ATSDR. 2001a. Guidance manual for the assessment of joint toxic action of chemical mixtures. Atlanta, GA: Agency for Toxic Substances and Disease Registry.

*ATSDR. 2001b. Guidance manual for preparation of an interaction profile. Atlanta, GA: Agency for Toxic Substances and Disease Registry. U.S. Department of Health and Human Services. Public Health Service.

*Belles M, Albina ML, Sanchez DJ, et al. 2002. Interactions in developmental toxicology: Effects of concurrent exposure to lead, organic mercury, and arsenic in pregnant mice. *Arch Environ Contam Toxicol* 42(1):93–98.

*Berkowitz GS, Obel J, Deych E, et al. 2003. Exposure to indoor pesticides during pregnancy in a multiethnic, urban cohort. *Environ Health Perspect* 111(1):79–84.

Britson CA, Threlkeld St. 1998. Abundance, metamorphosis, developmental, and behavioral abnormalities in *Hyla chrysoscelis* tadpoles following exposure to three agrichemicals and methyl mercury in outdoor mesocosms. *Bull Environ Contam Toxicol* 61:154–161.

*Buckley TJ, Liddle J, Ashley DL, et al. 1997. Environmental and biomarker measurements in nine homes in the lower Rio Grande valley: Multimedia results for pesticides, metals, PAHs, and VOCs. *Environ Int* 23(5):705–732.

Buratti FM, Volpe MT, Meneguz A, et al. 2003. CYP-specific bioactivation of four organophosphorothioate pesticides by human liver microsomes. *Toxicol Appl Pharmacol* 186(3):143–154.

Burbacher TM, Mohamed MK, Mottett NK. 1988. Methylmercury effects on reproduction and offspring size at birth. *Reprod Toxicol* 1(4):267–278.

*CDC. 1991. Preventing lead poisoning in young children. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Services, Centers for Disease Control and Prevention. (As cited in ATSDR 2005.)

Chishti MA, Rotkiewicz T. 1992. Ultrastructural alterations produced in cockerels after mercuric chloride toxicity and subsequent interaction with an organophosphate insecticide. *Arch Environ Contam Toxicol* 22(4):445–451.

Chu I, Villeneuve DC, Becking GC, et al. 1981. Subchronic study of a mixture of inorganic substances present in the Great Lakes ecosystem in male and female rats. *Bull Environ Contam Toxicol* 26(1):42–45.

*Congiu L, Corongiu FP, Dore M, et al. 1979. The effect of lead nitrate on the tissue distribution of mercury in rats treated with methylmercury chloride. *Toxicol Appl Pharmacol* 51:363–366.

Coulston F, Goldberg L, Abraham, R, et al. 1972. Final report on safety evaluation and metabolic studies on Dow co. 179(IN151). Inst Exp Pathol Toxicol, Albany Medical College. (As cited in ATSDR 1997.)

Desi I, Nehez M, Siroki O, et al. 2000. Small subchronic doses of the pesticide dimethoate and/or cadmium and lead treatment cause disturbances in the chromosomes of young rats. Cent Eur J Public Health 8:59–60.

*Dieter MP, Ludke JL. 1975. Studies on combined effects of organophosphates and heavy metals in birds. I. Plasma and brain cholinesterase in Coturnix quail fed methyl mercury and orally dosed with parathion. Bull Environ Contam Toxicol 13(3):257–262.

*Dieter MP, Ludke JL. 1978. Studies on combined effects of organophosphates or carbamates and morsodren in birds. II. Plasma and cholinesterase in quail fed morsodren and orally dosed with parathion or carbofuran. Bull Environ Contam Toxicol 19(4):389–395.

Egle JL. 1972. Dietary exposures to selected metals and pesticides. Arch Environ Health 24:354–357.

Enserink EL, Maas-Diepeveen JL, Van Leeuwen CJ. 1991. Combined effects of metals: An ecotoxicological evaluation. Water Res 25(6):679–687.

EPA. 1986. Air quality criteria for lead. Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Research and Development, Office of Health and Environment Assessment, Environmental Criteria and Assessment Office. EPA 600/8-83-028F, 12–34 to 12–37.

EPA. 1994a. Guidance manual for the integrated exposure uptake biokinetic model for lead in children. U.S. Environmental Protection Agency, EPA/540/R-93/081. PB93-963510. (As cited in ATSDR 2005.)

EPA. 1994b. Technical support document: Parameters and equations used in integrated exposure uptake biokinetic model for lead in children (v0.99d). U.S. Environmental Protection Agency. EPA/540/R-94/040. PB94-963505. (As cited in ATSDR 2005.)

EPA. 1996. Bioavailability of lead in soil samples from the Jasper County, Missouri Superfund site. U.S. Environmental Protection Agency Region 8. Document Control No. 04800-030-0161. (As cited in ATSDR 2005.)

*EPA. 2000a. Chlorpyrifos revised risk assessment and agreement with registrants. Washington, DC: U.S. Environmental Protection Agency. Office of Prevention, pesticides and toxic substances (7506C). <http://www.epa.gov/pesticides/op/chlorpyrifos/agreement.pdf>. June 2000.

EPA. 2000b. Toxicology chapter for chlorpyrifos. Washington, DC: U.S. Environmental Protection Agency. Office of Prevention, Pesticides and Toxic Substances. http://www.epa.gov/oppsrrd1/op/chlorpyrifos/rev_tox.pdf. April 18, 2000.

*EPA. 2000c. Human health risk assessment. Chlorpyrifos. Washington, DC: U.S. Environmental Protection Agency. <http://www.epa.gov/oppsrrd1/op/chlorpyrifos/hedrra>. June 8, 2000.

*EPA. 2002a. Pesticides: Organophosphates. Chlorpyrifos facts. Washington, DC: U.S. Environmental Protection Agency. http://www.epa.gov/oppsrrd1/REDS/factsheets/chlorpyrifos_fs.htm.

EPA. 2002b. 2002 edition of the drinking water standards and health advisories. Washington, DC: U.S. Environmental Protection Agency. Office of Water. EPA 822-R-02-038.

*Ewald KA, Calabrese EJ. 2001. Lead reduces the nephrotoxicity of mercuric chloride. *Ecotoxicol Environ Saf* 48(2):215–218.

Farant JP, Wigfield DC. 1987. Interaction of divalent metal ions with normal and lead-inhibited human erythrocytic phosphobilinogen syntheses *in vitro*. *Toxicol Appl Pharmacol* 89:9–18.

FAO/WHO. 1999. Pesticide residues in food. Toxicological evaluations. International Programme on Chemical Safety. Food and Agriculture Organization & World Health Organization, 1–61.
<http://www.inchem.org/documents/jmpr/jmpmono/v99pr03.htm>.

*Garber B, Wel E. 1972. Adaptation to the toxic effects of lead. *Am Ind Hyg Assoc J* 33(11):756–760.

Gorell JM, Johnson CC, Rybicki BA, et al. 1997. Occupational exposure to metals as risk factors for Parkinson's disease. *Neurology* 48:650–658.

Gorell JM, Johnson CC, Rybicki BA, et al. 1999. Occupational exposure to manganese, copper, lead, iron, mercury and zinc and the risk of Parkinson's disease. *Neurotoxicology* 20(2–3):239–248.

Grandjean P, Weihe P, Needham LL, et al. 1995. Relation of a seafood diet to mercury, selenium, arsenic, and polychlorinated biphenyl and other organochlorine concentrations in human milk. *Environ Res* 71:29–38.

*Hapke HJ, Youssef S, Omer OH. 1978. Modification of the alkylphosphate toxicity in lead-contaminated rats (in German). *Dtsch Tieraerztl Wochenschr* 85(11):441–444.

Hultman P, Enestrom S. 1992. Dose-response studies in murine mercury-induced autoimmunity and immune-complex disease. *Toxicol Appl Pharmacol* 113:199–208.

Hultman P, Johansson U, Turley SJ, et al. 1994. Adverse immunological effects and autoimmunity induced by dental amalgam and alloy in mice. *FASEB J* 8:1183–1190.

IARC. 1987. IARC monographs on the evaluation of carcinogenic risk to humans. International Agency for Research on Cancer, World Health Organization. Supplement 7, Vol. 1–47.

IARC. 2003. Overall evaluations of carcinogenicity to humans: As evaluated in IARC Monographs Volumes 1–82 (a total of 885 agents, mixtures and exposures). International Agency for Research on Cancer. <http://193.51.164.11/moneeval/crthall.html>. January 2004.

Ilback N-G. 1991. Effects of methyl mercury exposure on spleen and blood natural killer (NK) cell activity in the mouse. *Toxicology* 67:117–124.

Ilback N-G, Sunderberg J, Oskarsson A. 1991. Methyl mercury exposure via placenta and milk impairs natural killer (NK) cell function in newborn rats. *Toxicol Lett* 58:149–158.

*Institoris L, Siroki O, Desi I, et al. 1999. Immunotoxicology examination of repeated dose combined exposure by dimethoate and two heavy metals in rats. *Hum Exp Toxicol* 18(2):88–94.

- *Institoris L, Siroki O, Underger U, et al. 2001. Immunotoxicological investigations on rats treated subacutely with dimethoate, As³⁺ and Hg²⁺ in combination. *Hum Exp Toxicol* 20(7):329–336.
- *IRIS. 2004. Integrated Risk Information Systems. U.S. Environmental Protection Agency. <http://www.epa.gov.iris>.
- Iturri SJ, Pena A. 1986. Heavy metal-induced inhibition of active transport in the rat small intestine *in vitro*. Interaction with other ions. *Comp Biochem Physiol C* 84(2):363–368
- Jordan SA, Bhatnager MK. 1990. Hepatic enzyme activity after combined administration of methylmercury, lead and cadmium in the Pekin duck. *Bull Environ Contam Toxicol* 44:623–628.
- *Jordan SA, Bhatnager MK, Dettger WJ. 1990. Combined effects of methylmercury, lead, and cadmium on hepatic metallothionein and metal concentrations in the Pekin duck. *Arch Environ Contam Toxicol* 19:886–891.
- Krishnan K, Brodeur J. 1994. Toxic interactions among environmental pollutants: Corroborating laboratory observations with human experience. *Environ Health Perspect* 102:11–17.
- Kukowski A, Shubat P, Stroebel C. 2001. Assessment of children's risks from individual and combined neurotoxicants. *Neurotoxicology* 22(1):144.
- Lasley SM, Gilbert ME. 1999. Lead inhibits the rat N-methyl-D-aspartate receptor channel by binding to a site distinct from the zinc allosteric site. *Toxicol Appl Pharmacol* 159:224–233.
- Lewis M, Worobey J, Ramsay DS, et al. 1992. Prenatal exposure to heavy metals: Effect on childhood cognitive skills and health status. *Pediatrics* 89(6):1010–1015.
- Manzo L, Castoldi AF, Coccini T, et al. 1995. Mechanisms of neurotoxicity: Applications to human biomonitoring. *Toxicol Lett* 77:63–72.
- Marlowe M, Cossairt A, Moon C, et al. 1985a. Main and interaction effects of metallic toxins on classroom behavior. *J Abnorm Child Psychol* 13(2):185–198.
- Marlowe M, Stellern J, Errera J, et al. 1985b. Main and interaction effects of metal pollutants on visual-motor performance. *Arch Environ Health* 40(4):221–225.
- McMurray ST, Lochmiller RL, McBee K, et al. 1999. Indicators of immunotoxicity in populations of cotton rats (*Sigmodon hispidus*) inhabiting an abandoned oil refinery. *Ecotoxicol Environ Saf* 42(3):223–235.
- Mohamed M, Burbacher T, Mottett N. 1987. Effect of methyl mercury on testicular functions in *Macaca fascicularis* monkeys. *Pharmacol Toxicol* 60(1):29–36.
- Mukerjee S, Ellenson WD, Lewis RG, et al. 1997. An environmental scoping study in the lower Rio Grande Valley of Texas. III. Residential microenvironmental monitoring for air, house dust, and soil. *Environ Int* 23:657–673.
- Nagymajtenyi L, Schulz H, Papp A, et al. 1997. Developmental neurotoxic effects of environmental pollutants (heavy metals + organophosphates) in animal experiments. *Neurotoxicology* 18(3):876.

- *Nagymajtenyi L, Schultz H, Papp A, et al. 1998. Developmental neurotoxicology effects of lead and dimethoate in animal experiments. *Neurotoxicology* 19(4–5):617–622.
- Nagymajtenyi L, Desi I, Schulz H, et al. 2000a. Developmental effects of combined lead, mercury, and ethanol exposure on neurophysiological processes in rats. *Neurotoxicology* 21(4):628–629.
- *Nagymajtenyi L, Desi I, Papp A, et al. 2000b. Experimentally induced functional changes of the nervous system caused by subchronic combined administration of heavy metals and on organophosphate pesticide. *Cent Eur J Public Health* 8:64–65.
- Needleman HL, Gatsonis CA. 1990. Low-level lead exposure and the IQ of children: A meta-analysis of modern studies. *J Am Med Assoc* 263(5):673–678.
- Newland MC. 1994. The value of behavioral mechanisms in studies of developmental neurotoxicology. *Neurotoxicol Teratol* 16(3):313.
- NTP. 2001. 9th report on carcinogens. Research Triangle Park, NC: U.S. Department of Health and Human Services. National Toxicology Program. <http://ehis.niehs.nih.gov/roc/toc9.html>. September 11, 2001.
- NTP. 2003. 10th report on carcinogens. U.S. Department of Health and Human Services. National Toxicology Program. <http://ehp.niehs.nih.gov/roc/toc10.htm>.
- Nublien F, Feicht EA, Schulte-Hostede S, et al. 1995. Exposure analysis of the inhabitants living in the neighborhood of a mercury-contaminated industrial site. *Chemosphere* 30(12):2241–2248.
- Oskarrsson A, Palminger HI, Sundberg J, et al. 1998. Risk assessment in relation to neonatal metal exposure. *Analyst* 123(1):19–23.
- Park JD, Liu Y, Klassen CD. 2001. Protective effect of metallothionein against the toxicity of cadmium and other metals. *Toxicology* 21(2–3):93–100.
- Parkinson A. 1996. Biotransformation of xenobiotics. In: Klassen CD, ed. *Cassarett and Doull's Toxicology Program*. <http://ehp.niehs.nih.gov/roc/toc10.htm>.
- Peakall DB. 1996. Disrupted patterns of behavior in natural populations as an index of ecotoxicity. *Environ Health Perspect Suppl* 104(2):331–335.
- *Phillips WE, Hatina G, Villeneuve DC, et al. 1973. Chronic ingestion of lead and the response of the immature rat to parathion. *Bull Environ Contam Toxicol* 9(1):28–36.
- Pocock SJ, Smith M, Baghurst P. 1994. Environmental lead and children's intelligence: A systematic review of the epidemiological evidence. *Br Med J* 309:1189–1197. (As cited in ATSDR 1999.)
- Pope CN, Liu J. 1997. Age-related differences in sensitivity to organophosphorus pesticides. *Environ Toxicol Pharmacol* 4:309–314.
- *Prasada Rao PVV, Jordan SA, Bhatnagar MK. 1989a. Combined nephrotoxicity of methylmercury, lead, and cadmium in Pekin ducks: Metallothionein, metal interactions, and histopathology. *J Toxicol Environ Health* 26:327–348.

*Prasada Rao PVV, Jordan SA, Bhatnager MK. 1989b. Ultrastructure of kidney of ducks exposed to methylmercury, lead and cadmium in combination. *J Environ Pathol Toxicol & Oncology* 9(1):19–44.

Prasada Rao PVV, Jordan SA, Bhatnagar MK. 1993. Renal enzyme changes in Pekin ducks (*Anas platyrhynchos*) after combined administration of methylmercury, cadmium and lead. *Comp Biochem Physiol* 106C(3):769–772.

Propst TL, Lochmiller RL, Qualls CW JR, et al. 1999. *In situ* (mesocosm) assessment of immunotoxicity risks to small mammals inhabiting petrochemical waste sites. *Chemosphere* 38(5):1049–1067.

Rao PV, Jordan SA, Bhatnagar MK. 1989. Ultrastructure of kidney of ducks exposed to methylmercury, lead, and cadmium in combination. *J Environ Pathol Toxicol Oncol* 9(1):19–44.

Rocha JBT, Pereira ME, Emanuelli T, et al. 1995. Effect of treatment with mercury chloride and lead acetate during the second stage of rapid postnatal brain growth on d-aminolevulinic acid dehydratase (ALA-D) activity in brain, liver, kidney, and blood of suckling rats. *Toxicology* 100:27–37.

Ronnback L, Hansson E. 1992. Chronic encephalopathies induced by mercury of lead: Aspects of underlying cellular and molecular mechanisms. *Br J Ind Med* 49(4):233–240.

*Schubert J, Riley EJ, Tyler SA. 1978. Combined effects in toxicology--a rapid systematic testing procedure: Cadmium, mercury, and lead. *J Toxicol Environ Health* 4(5–6):763–776.

Schwartz J. 1994. Low-level lead exposure and children's IQ: A meta-analysis and search for a threshold. *Environ Res* 65:42–55. (As cited in ATSDR 2005.)

Sheerin NS, Monk PN, Aslam M, et al. 1994. Simultaneous exposure to lead, arsenic and mercury from Indian ethnic remedies. *Br J Clin Pract* 48(6):332–333.

Shenker BJ, Berthold P, Rooney C, et al. 1993. Immunotoxic effects of mercury compounds on human lymphocytes on monocytes. III. Alterations in B-cell function and viability. *Immunopharmacol Immunotoxicol* 15(1):87–112.

*Sin YM, Wong MK, Low LK. 1985. Effect of lead on tissue deposition of mercury in mice. *Bull Environ Contam Toxicol* 34(3):438–445.

*Smolen JM, Stone AT. 1997. Divalent metal ion-catalyzed hydrolysis of phosphorothionate ester pesticides and their corresponding oxonates. *Environ Sci Technol* 31:1664–1673.

Spehar RL, Fiandt JT. 1986. Acute and chronic effects of water quality criteria-based metal mixtures. *Environ Toxicol Chem* 5(10):917–932.

*Steevens JA, Benson WH. 1999. Toxicological interactions of chlorpyrifos and methyl mercury in the amphipod, *Hyalella azteca*. *Toxicol Sci* 52(2):168–177.

*Steevens JA, Benson WH. 2000. Interactions of chlorpyrifos and methyl mercury: A mechanistic approach to assess chemical mixtures. *Mar Environ Res* 50(1–5):113–117.

*Steevens JA, Benson WH. 2001. Toxicokinetic interactions and survival of *Hyalella azteca* exposed to binary mixtures of chlorpyrifos, dieldrin, and methyl mercury. *Aquat Toxicol* 51(4):377–388.

Stohs SJ, Bagchi D. 1995. Oxidative mechanisms in the toxicity of metal ions. *Free Radic Biol Med* 18(2):321–336.

*Swart Y, Kruger TF, Menkveld R, et al. 1991. Effect of lead and organophosphates on sperm morphology. *Arch Androl* 26(2):67–70.

Tang J, Cao Y, Rose RL, et al. 2001. Metabolism of chlorpyrifos by human cytochrome P450 isoforms and human, mouse, and rat liver microsomes. *Drug Metab Dispos* 29(9):1201–1204.

Taylor P. 1996. Anticholinesterase agents. In: Goodman LS, Gilman A, Hardman JG, et al., eds. *Goodman & Gilman's the pharmacological basis of therapeutics*. New York, NY: McGraw-Hill: Health Professions Division, 161–176.

*Wan B H, Wong MK, Mok CY. 1994. Mercury(II) ion-promoted hydrolysis of some organophosphorus pesticides. *Pestic Sci* 42:93–99.

*Yoshikawa H, Hisayoshi O. 1982. Interaction of metals and metallothionein. In: Foulkes EC, ed. *Biological roles of metallothionein*. Amsterdam, Holland: Elsevier North Holland Inc, 11–23.

Zawia NW, Crumpton T, Brydie M, et al. 2000. Disruption of the zinc finger domain: A common target that underlies many of the effects of lead. *Neurotoxicology* 21(6):1069–1080.

*Zeinali M, Torrents A. 1998. Mercury-promoted hydrolysis of parathion-methyl: Effect of chloride and hydrated species. *Environ Sci Technol* 32(15):2338–2342.