

8. REFERENCES

- Acedo GN, Redei GP. 1982. Accuracy of the identification of carcinogens and noncarcinogens by arabidopsis. *Arabidopsis Information Service* (19):103-107.
- *ACGIH. 1990. Threshold limit values for chemical substances and physical agents and biological exposure indices for 1990-1991. American Conference of Governmental Industrial Hygienists. Cincinnati, OH.
- *Ames BN, McCann J, Yamasaki E. 1975. Methods for detecting carcinogens and mutagens with the Salmonella/mammalian-microsome mutagenicity test. *Mutation Res* 31:347-363.
- Anderson D, Styles JA. 1978. An evaluation of 6-short-term tests for detecting organic chemical carcinogens: Appendix 2. The bacterial mutation test. *Br J Cancer* 37:924-930.
- *Angerer J, Schaller KH. 1985. Analyses of hazardous substances in biological materials. Germany: VCH Verlagsgesellschaft mbH, 1:17-30.
- Ashby J, Paton D, Callander RD. 1988. Potent mutagenicity to salmonella of equimolar mixture of 52 chemicals used in five collaborative studies. *Mutagenesis* 3(4):345-348.
- *ATSDR. 1989. Decision guide for identifying substance-specific data needs related to toxicological profiles. Agency for Toxic Substances and Disease Registry. Atlanta, GA.
- *ATSDR. 1991. Agency for Toxic Substances and Disease Registry Annual report FY 1991. U. S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry. Atlanta, GA.
- *Baker RS, Bonin AM. 1981. Study of 42 coded compounds with the Salmonella/mammalian microsome assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:249-260.
- *Barek J, Pacakova V, Stulik K, et al. 1985. Monitoring of aromatic amines by HPLC with electrochemical detection: Comparison of methods for destruction of carcinogenic aromatic amines in laboratory wastes. *Talanta* 32(4):279-283.
- *Barnes DC, Dourson M. 1988. Reference dose (RfD): Description and use in health risk assessments. *Regul Toxicol Pharmacol* 8:471-486.
- *Barnes JR. 1964. Toxicity study on "MOCA" 4,4'-methylene-bis(2-chloroaniline). DuPont Haskell Lab Study no. MR-652. Sept. 10.
- Benigni R, Giuliani A. 1985. Cluster analysis of short-term tests: A new methodological approach. *Mutat Res* 147(4):139-152.

*Cited in text

8. REFERENCES

- Bertazzi PA. 1975. [Methylene-bis-o-chloroaniline (MBOCA): Anew chemical carcinogen.] Med Lav 66(2):81-84. (Italian)
- *Brooks TM, Dean BJ. 1981. Mutagenic activity of 42 coded compounds in the Salmonella/microsome assay with preincubation. In: deserres FJ, Ashby J, eds. Evaluation of shortterm tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:261-270.
- Brookes P, Preston RJ. 1981. Summary report on the performance of *in vitro* mammalia assays. In: Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:77-85.
- *Butler MA, Guengerich FP, Kadlubar FF. 1989. Metabolic oxidation of the carcinogens 4-aminobiphenyl and 4,4'-methylene-bis(2-chloroaniline) by human hepatic microsomes and by purified rat hepatic cytochrome P-450 monooxygenases. Cancer Res 49(1):25-31.
- Carpenter AV, Flanders WD, Frome EL, et al. 1988. Chemical exposures and central nervous system cancers: A case-control study among workers at two nuclear facilities. Am J Ind Med 13(3):351-362.
- Cartwright RA. 1990. Bladder cancer screening in the UK. In: International Conference on Bladder Cancer Screening in High-Risk Groups, September 13-14, 1989. J Occup Med 32(9):878-880.
- *Caspary WJ, Daston DS, Myhr BC, et al. 1988. Evaluation of the L5178Y mouse lymphoma cell mutagenesis assay: Interlaboratory reproducibility and assessment. Environmental Molecular Mutagenesis 12 (suppl 13): 195-229.
- Casto BC. 1980. Detection of chemical carcinogens and mutagens in hamster cells by enhancement of adenovirus transformation. Adv Mod Environ Toxicol 1:241.
- *Casto BC. 1983. Comparison of the sensitivity of rodent and human cells to chemical carcinogens using viral transformation, DNA damage, and cytotoxicity assays. Basic Life Sci 24:429-449.
- *CDC/ATSDR. 1990. Biomarkers of organ damage or dysfunction for the renal, hepatobiliary and immune systems. Atlanta, GA: CDC/ATSDR Subcommittee on Biomarkers of Organ Damage and Dysfunction, Centers for Disease Control, Agency for Toxic Substances and Disease Registry. Summary Report, August 27, 1990.
- “Cheever KL, DeBord DG, Swearengin TF. 1991. 4,4'-Methylenebis(2-chloroaniline) (MOCA): The effect of multiple oral administration, route and phenobarbital induction on macromolecular adduct formation in the rat. Fundam Appl Toxicol 16(1):71-80.
- *Cheever KL, Richards DE, Weigel WW, et al. 1988. Macromolecular adduct formation by 4,4'-methylene-bis(2-chloroaniline) in adult male rat. Stand J Work Environ Health 14:57-59.
- *Cheever KL, Richards DE, Weigel WW, et al. 1990. 4,4'-Methylene-bis(2-chloroaniline) (MOCA): Comparison of macromolecular adduct formation after oral or dermal administration in the rat. Fundam Appl Toxicol 14(2):273-28X

8. REFERENCES

- *Chen TH, Kuslikis BI, Braselton WE Jr. 1989. Hydroxylation of 4,4'-methylenebis(2-chloroaniline) by canine, guinea pig, and rat liver microsomes. *Drug Metab Dispos* 17(4):406-413.
- *Chen TH, Kuslikis BI, Braselton WE Jr. 1991. Unlabeled hemoglobin adducts of 4,4'-methylenebis(2-chloroaniline) in rats and guinea pigs. *Arch Toxicol* 65(3):177-185.
- *Chin B, Tobes MC, Han SS. 1983. Absorption of 4,4'-methylenebis(2-chloroaniline) by human skin. *Environ Res* 32(1):167-178.
- *:CIS 1992. Chemical Information Systems, Inc. Baltimore, MD.
- *Clapp DE, Piacitelli GM, Zaebst DD, et al. 1991. Assessing exposure to 4,4'-methylenebis(2-chloroaniline) (MBOCA) in the workplace. *Appl Occup Environ Hyg* 6(2):125-130.
- Cocker J, Wilson HK. 1989. Determination of 4,4'-methylenebis(2-chloroaniline) in urine: Letter. *Clin Chem* 35(3):506.
- *Cocker J, Boobis AR, Davis DS. 1986. Routes of activation of 4,4'-methylenebis(2-chloroaniline) and 4,4'-methylenedianiline to bacterial mutagens. In: International Conference on Practical *in vitro* Toxicology, Berkshire, England, September 18-20, 1985. *Food Chem Toxicol* 24(6-7):755-756.
- *Cocker J, Boobis AR, Davis DS. 1988. Determination of the n-acetyl metabolites of 4,4'-methylene dianiline and 4,4'-methylene-bis(2-chloroaniline) in urine. *Biomed Env Mass Spec* 17(3):161-167
- *Cocker J, Boobis AR, Gibson JF, et al. 1985. The metabolic activation of 4,4'methylenebis(2-chlorobenzeneamine) to a bacterial mutagen by hepatic postmitochondrial supernatant from human and other species. *Environ Mutagen* 7(4):501-509.
- *Cocker J, Boobis AR, Wilson HK, et al. 1990. Evidence that a beta-n-glucuronide of 4,4'-methylene-bis(2-chloroaniline) (MBOCA) is a major urinary metabolite in man: Implications for biological monitoring. *Br J Ind Med* 47(3):154-161.
- Cocker J, Gristwood W, Wilson HK. 1986. Assessment of occupational exposure to 4,4'-diaminodiphenylmethane (methylene dianiline) by gas chromatograph-mass spectrometry analysis of urine. *Br J Ind Med* 43(9):620-625.
- *Cowles SR. 1978. Cancer in the workplace--Pericall Pott to the present. *Milit Med* 143(6):395-400.
- *Daniel MR, Dehnel JM. 1981. Cell transformation test with baby hamster kidney cells. In: Deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:626-637.
- Debord DG, Cheever KL, Swearengin RF. 1990. Alterations in histone phosphorylation in rat spleen cells after *in vitro* treatment with 4,4'-methylene-bis(2-chloroaniline) (MOCA). In: Society of Toxicology 29th Annual Meeting, Miami Beach, Florida, February 12-16, 1990. Washington, DC: Society of Toxicology, 417.
- De Serres FJ, Hoffmann GR. 1981. Summary report on the performance of yeast assays. In:

8. REFERENCES

Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:68-76.

DOE. 1979. MOCA permeation of protective clothing. Contract no. W-7405ENG-26. Washington, DC: U.S. Department of Energy.

*Dormer M, Hytonen S, Sorsa M. 1983. Application of the sex-linked recessive lethal test in *Drosophila melanogaster* for monitoring the work ENVIRONMENT of a rubber factory. *Hereditas* 99(1):7-10.

*DUCOS P, Gaudin R. 1983. Methylene bis orthochloroaniline ("MOCA"). Evaluation of the occupational exposure in France. *Cahiers de notes Documentaires* 1X3:517-522.

*DUCOS P, Maire C, Gaudin R. 1985. Assessment of occupational exposure to 4,4'-methylenebis(2-chloroaniline) (MOCA) by a new sensitive method for biological monitoring. *Int Arch Occup Environ Health* 55(2):159-167.

*Dunkel VC, Pienta RJ, Sivak A, et al. 1981. Comparative neoplastic transformation responses of Balb/3T3 cells, Syrian hamster embryo cells, and Rauscher murine leukemia virus-infected Fischer 344 rat embryo cells to chemical carcinogens. *J natl Cancer Inst* 67(6):1303-1312.

*Dunkel VC, Zeiger E, Brusick D, et al. 1984. Reproducibility of microbial mutagenicity assays: 1. Tests with *Salmonella typhimurium* and *Escherichia coli* using a standardized protocol. *Environ Mutagen G(suppl 1)*:1-254.

*Ebell GF, Fleming DE, Genovese JH, et al. 1980. Simultaneous determination of 2,4- and 2,6-diisocyanatotoluene (TDI) and 3,3'-dichloro-4,4'-diaminodiphenylmethane (MOCA) in air. *Ann Occup Hyg* 23(2):185-188.

*Edwards JW, Priestly BG. 1992. Biological and biological-effect monitoring of workers exposed to 4,4'-methylene-bis(2-chloroaniline). *Hum Exp Toxicol* 11(3):229-236.

*Endo Y, Hara I. 1991. DNA-adduct detection in rats administered with 4,4'-methylenedianiline or 4,4'-methylenebis(2-chloroaniline). *J Ind Health* 33:430-431.

*EPA. 1979. Treatability of carcinogenic and other hazardous organic compounds. Contract no. CI-68-03-2559. Cincinnati, OH: U.S. Environmental Protection Agency, Office of Research and Development. Document no. 600/2-79-097.

*EPA. 1981a. Development of analytical test procedures for organic pollutants in wastewater - application to pesticides. Contract no. 68-03-2711. Cincinnati, OH: U.S. Environmental Protection Agency, Industrial Environmental Research Laboratory, Office of Research and Development. EPA 600/4-81-017. Document no. PB82-182507.

*EPA. 1981b. Engineering handbook for hazardous waste incineration. Contract no. 68-3-3025. Cincinnati, OH: U.S. Environmental Protection Agency, Office of Environmental Engineering and Technology. Document no. PB81-248163.

EPA. 1984. Data acquisition for Environmental transport and fate screening for compound of

8. REFERENCES

interest to the office of emergency and remedial response. Contract no. 68-03-2981. Athens, GA: U.S. Environmental Protection Agency, Office of Health and Environmental Assessment. Document no. PB84-245281.

*EPA. 1985. List of hazardous substances and reportable quantities. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 302.4.

*EPA. 1986. 4,4'-Methylenebis (2-chloroaniline): Final reporting and record keeping requirements. U.S. Environmental Protection Agency. Federal Register 51(75):13220-13224.

EPA. 1987a. Effects of 4,4'-methylene-(2-chloroaniline) and benzotrichloride in humans and/or animal tissues. Cooperative agreement no. CR-812121. Research Triangle Park, nC: U.S. Environmental Protection Agency, Health Effects Research Laboratory. Document no. PB88-117882.

EPA. 1987b. Letter from NIOSH to USEPA forwarding more information on workers exposed to 4,4'-methylenebis(2-chloroaniline) and diagnosed as having a bladder tumor (5/29/87). Washington, DC. U.S. Environmental Protection Agency. EPA no. FYI-OTS-0687-0552.

EPA. 1987c. Toxic air pollutant/source crosswalk - a screening tool for locating possible sources emitting toxic air pollutants. Washington, DC: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards.

*EPA. 1988a. Hazardous waste management system: Identification and listing of hazardous waste. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 261.

*EPA. 1988b. Hazardous waste management system: Identification and listing of hazardous waste. U.S. Environmental Protection Agency. Federal Register 53(78): 13382-13393.

*EPA. 1988~. Measurement of hydrolysis rate constants for evaluation of hazardous waste land disposal. Volume 3: Data on 70 chemicals. Athens, GA: U.S. Environmental Protection Agency, Office of Research and Development. EPA/600/3-88028, document no. PB88-234042.

*EPA. 1988d. Toxic chemical release reporting: Community right-to-know. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 372.

*EPA. 1988e. Toxic chemical release reporting: Community right-to-know. U.S. Environmental Protection Agency. Federal Register 53(30):4500-4554.

*EPA. 1988f. TSCA comprehensive assessment information rule: Reporting and recordkeeping requirements. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 704.

*EPA. 1989. List of hazardous substances and reportable quantities. U.S. Environmental Protection Agency. Federal Register 54(155):33426-X3484.

*EPA. 1990a. Interim methods for development of inhalation reference doses. Research Triangle Park, nC. U.S. Environmental Protection Agency. EPA/600/8-90/066A.

*EPA. 1990b. Health and Environmental effects document for 4,4'-methylenebis(2-chloroaniline).

8. REFERENCES

Cincinnati, OH. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Responses. EPA 600/x-85/371.

*EPA. 1991a. Land disposal restrictions. U.S. Environmental Protection Agency. Code of Federal Regulations. 40 CFR 268.

**EPA. 1991b. Land disposal restrictions. U.S. Environmental Protection Agency. Federal Register 56(21):3876-3928.

*Farmer PB, Rickard J, Robertson S. 1981. The metabolism and distribution of 4,4'-methylenebis(2-chloroaniline) (MBOCA) in rats. *J Appl Toxicol* 1(6):317-322.

*FEDRIP. 1991. Federal Research in Progress. Dialog Information Service, Inc.. December 1991. Fielder RJ, Dale EA, Smith AM, et al. 1983. Trimellitic anhydride (TMA); 4,4'-methylenebis-(2-chloroaniline) (MBOCA); n-nitrosodiethanolamine (nDELA). London, England: H.M. Stationery Office.

Fishbein L. 1984. Aromatic amines. In: The handbook of environmental chemistry: Anthropogenic substances. Berlin, Germany: Springer-Verlag, 3:1-40.

*Galloway SM, Bloom AD, Resnick M, et al. 1985. Development of a standard protocol for *in vitro* cytogenetic testing with Chinese hamster ovary cells: Comparison of results for 22 compounds in two laboratories. *Environ Mutagen* 21-51.

*Garner RC, Welch A, Pickering C. 1981. Mutagenic activity of 42 coded compounds in the *Salmonella*/microsome assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:280-284.

*Gatehouse D. 1981. Mutagenic activity of 42 coded compounds in the "microtiter" fluctuation test. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1376-386.

*GISO. 1985. General Industry Safety Orders: California Title 8, Section 5215:886-890; effective July 1985.

Goutet P. 1981. 4,4'-Methylenebis(2-chloroaniline): Toxicological hazards and exposure at work. Cahiers de notes Documentaires 104387-393.

Graul RJ, Stanley RL. 1982. Specific gravity adjustment of urine analysis results. *Am Ind Hyg Assoc J* 43(11):86X

*Gristwood W, Robertson SM, Wilson HK. 1984. The determination of 4,4'-methylenebis(2-chloroaniline) in urine by electron capture gas chromatography. *J Anal Toxicol* 8(3):101-105.

*Groth DH, Weigel WW, Tolos WP, et al. 1984. 4,4'-Methylene-bis-ortho-chloroaniline (MBOCA): Absorption and excretion after skin application and gavage. *Environ Res* 34(1):38-54.

*Grundmann E, Steinhoff D. 1970. Liver and lung tumors in rats from 3,3'-dichloro-4,4'-

8. REFERENCES

diaminodiphenyl-methane. Z Krebsforschung 74:28-39.

Haworth S, Lawlor T, Mortelmans K, et al. 1983. Salmonella mutagenicity test results for 250 chemicals. Environ Mutagen 5(Suppl):3-142.

*HAZDAT. 1993. Agency for Toxic Substances and Disease Registry (ATSDR), Atlanta, GA. February 13, 1992.

Hendry WF, Blandy JP, Glashan RW, et al. 1988. Occupational bladder cancer: A guide for clinicians. Br J of Urology 61(3):183-191.

Henning HF. 1974. Precautions in the use of methylene-bis-o-chloroaniline (MBOCA). Ann Occup Hyg 17(2):137-142.

Henschler D. 1983. Methods of determination of harmful industrial substances. Volume 2: Analyses of biological matter. Germany: Verlag Chemie, 7th Supplement.

Henschler D. 1987. Risk assessment and evaluation of chemical carcinogens present and future strategies. J Cancer Res Clin Oncol 1X3(1):1-7.

*Hesbert A, Bottin MC, DeCeaurriz J. 1985. Mutagenicity of 4,4'-methylenebis(2-chloroaniline) "MOCA" and its n-acetyl derivatives in *S. typhimutium*. Int Arch Occup Environ Health 55(2):169-174.

Hogan TJ. 1993. Case study "Carcinogens": The MBOCA TLV example. Am Ind Hyg Assoc J 54(S):458-460.

*Hosein HR, Van Roosmalen PB. 1978. Acute exposure to methylene-bis-ortho chloroaniline (MOCA). Am Ind Hyg Assoc J 39(6):496-497.

*Howard PH, Boethling RS, Jarvis WF, et al. 1991. Handbook of Environmental degradation rates. Chelsea, MI: Lewis Publishers, 348-349.

*HSDB. 1991. 4,4'-Methylenebis(2-chloroaniline). Hazardous Substances Data Bank. national Library of Medicine, national Toxicology Information Program, Bethesda, MD. October 17, 1991.

*Hubbard SA, Green MHL, Bridges BA, et al. 1981. Fluctuation test with S9 and hepatocyte activation. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1361-370.

*IARC. 1974. IARC monographs on the evaluation of the carcinogenic risk of chemicals to man: Some aromatic amines, hydrazine and related substances, n-nitroso compounds and miscellaneous alkylating agents. Vol. 4:65-71. Lyon, France: World Health Organization, International Agency for Research on Cancer.

*IARC. 1987. IARC monographs on the evaluation of the carcinogenic risk to man: Summary table. Supp. 7:66. Lyon, France: World Health Organization, International Agency for Research on Cancer.

8. REFERENCES

- IARC. 1990. IARC scientific publications, no. 100. Cancer: causes, occurrence and control 100:129-130. Lyon, France: World Health Organization, International Agency for Research on Cancer.
- *Ichikawa Y, Yoshida M, Okayama A, et al. 1990. Biological monitoring for workers exposed to 4,4'-methylenebis(2-chloroaniline). Am Ind Hyg Assoc J 51(1):5-7.
- *Ichinotsubo D, Mower H, Mandel M. 1981a. Mutagen testing of a series of paired compounds with the Ames Salmonella testing system. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:298-301.
- *Ichinotsubo D, Mower H, Mandel H. 1981b. Testing of a series of paired compounds (carcinogen and noncarcinogenic structural analog) by DNA repair-deficient *E. coli* strains. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:195-198.
- Igaku S. 1991. [DNA-adduct detection in rats administered with 4,4'-methylenedianiline or 4'4-methylene bis(2-chloroaniline).] Endo, Yoko; Hara, Ichiro (Department of Public Health, Kansai Med. Univ., Moriguchi 570) 33(5):430-431. (Japanese)
- *Jagannath DR, Vultaggio DM, Brusick DJ. 1981. Genetic activity of 42 coded compounds in the mitotic gene conversion assay using *Saccharomyces cerevisiae* strain D4. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:456-467.
- *James RH, Adams RE, Finkel JM, et al. 1985. Evaluation of analytical methods for the determination of POHC in combustion products. J Air Pollut Control Assoc 35(9):959-969.
- Jedrzejczak K, Gaind VS. 1992. Determination of 4,4'-methylenebis(2-chloroaniline) in urine using capillary gas chromatography and negative ion chemical ionization mass spectrometry. Analyst 117:1417-1420.
- Johnson LD. 1985. Air pollution - "toxic" or "hazardous" air pollutants. International Congress Symposium Series - R Society of Medicine 82:15-23.
- *Kada T. 1981. The DNA-damaging activity of 42 coded compounds in the Ret-assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:175-182.
- Kada T, Green M, Mandel M, et al. 1981. Summary report on the performance of bacterial repair, phage induction, degranulation, and nuclear enlargement assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:33-48.
- Kadlubar FF. 1987. Metabolism and DNA binding of carcinogenic aromatic amines. IS1 Atlas Sci Pharmacol 1(2):129-132.
- Kadlubar FF, Culp SJ, Turesky RJ, et al. 1990. Biochemical mechanisms of DNA adduct formation in human tissues by carcinogenic aromatic amines. In: 15th International Cancer Congress, Hamburg,

8. REFERENCES

- Germany, August 16-22, 1990. *J Cancer Res Clin Oncol II*G(Supp1, part 2):1062.
- Karstadt M, Bobal R. 1982. Availability of epidemiologic data on humans exposed to animal carcinogens: 2. Chemical uses and production volume. *Teratogenesis Carcinog Mutagen* 2(2):1.51-168.
- Karstadt M, Bobal R, Selikoff IJ. 1981. A survey of availability of epidemiologic data on humans exposed to animal carcinogens. In: Peto R, Schneiderman M, eds. *Banbury report, volume 9. Quantification of Occupational Cancer Meeting, March 29-April 2, 1981*. Cold Spring Harbor, nY: Cold Spring Harbor Laboratory, 0(0):223-246.
- *Kassinova GV, Kovaltsova SV, Marfin SV, et al. 1981. Activity of 40 coded compounds in differential inhibition and mitotic crossing-over assays in yeast. In: deserres FJ, Ashby J, eds. *Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program*. *Prog Mutat Res* 1:434-455.
- *Katz M, Heddle JA, Salamone MF. 1981. Mutagenic activity of polycyclic aromatic hydrocarbons and other Environmental pollutants. In: Dennis AJ, ed. *Chemical analytical and biological fate: Polynuclear aromatic hydrocarbons, 5th International Symp*. Columbus, OH: Battelle Press, 519-528.
- *Keeslar FL. 1986. The removal and control of methylene-bis orthochloroaniline in residential and industrial areas of Adrian, Michigan. In: Ludwigson J, ed. *Proceedings of the 1986 Conference on Hazardous Material Spills, Preparedness, Prevention Control, and Cleanup of Releases*, St. Louis, MO, May 5-8, 1986. Rockville, MD: Government Institute Inc., 93-97.
- *Kommineni C, Groth DH, Frockt IJ, et al. 1979. Determination of the tumorigenic potential of methylene-bis-orthochloroaniline. *J Environ Pathol Toxicol* 2(5):149-171.
- *Kugler-Stegmeier ME, Friederich U, Graf U, et al. 1989. Genotoxicity of aniline derivatives in various short-term tests. *Mutat Res* 211(2):279-289.
- Kuslikis BI. 1989. Metabolic activation in the rat, dog, guinea pig and human of the suspect carcinogen 4,4'-methylenebis(2-chloroaniline). *Diss Abstr Int* 50(3):825-B.
- *Kuslikis BI, Tosko JE, Braselton WE Jr. 1991. Mutagenicity and effect on gap-junctional intercellular communication of 4,4'-methylenebis(2-chloroaniline) and its oxidized metabolites. *Mutagenesis* 6(1):19-24.
- Lichtenberg JJ, Longbottom JE, Bellar TA. 1987. Analytical methods for the determination of volatile nonpolar organic chemicals in water and water related environments. In: Suffet IH, Malaiyandi M, eds. *Advances in chemistry series 214, organic pollutants in water: Sampling, analysis, and toxicity testing*. 188th Meeting of the American Chemical Society, Philadelphia, PA, August 29-31, 1984. Washington, D-C.: American Chemical Society, 63-82.
- Linch AL. 1974. Biological monitoring for industrial exposure to cyanogenic aromatic nitro and amino compounds. *Am Ind Hyg Assoc J* 35:426-432.

8. REFERENCES

- *Linch AL, O'Connor GB, Barnes JR, et al. 1971. Methylene-bis-ortho-chloroaniline (MOCA): Evaluation of hazards and exposure control. Am Ind Hyg Assoc J 32(12):802-819.
- Locke J. 1986. Fixing exposure limits for toxic chemicals in the UK - some case studies. Sci Total Environ 51:237-260.
- *Lowry LK, Clapp DE. 1992. Urinary 4,4'-methylenebis(2-chloroaniline)(MBOCA): A case for biological monitoring. Appl Occup Environ Hyg 7:593-598.
- *MacDonald DJ. 1981. Salmonella/microsome tests on 42 coded chemicals. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:285-297.
- Manis MO, Braselton WE. 1982. Enzymatic and chromatographic characterization of the major urinary metabolite of 4,4'-methylenebis-2-chloroaniline in dogs. In: 66th Annual Meeting of the Federation of American Societies for Experimental Biology, new Orleans, LA, April 15-23, 1982. Fed Proc 41(5):Abstract 7646.
- Manis MO, Braselton WE. 1983. Protein binding and structure identification of the major urinary metabolite of 4,4'-methylenebis-2-chloroaniline in dogs. In: 67th Annual Meeting of the Federation of American Societies for Experimental Biology, Chicago, IL, April 10-15, 1983. Fed Proc 42(3):Abstract 354.
- *Manis MO, Braselton WE. 1984. Structure elucidation and *in vitro* reactivity of the major metabolite of 4,4'-methylenebis(2-chloroaniline) (MBOCA) in canine urine. Fundam Appl Toxicol 4(6):1000-1008.
- Manis MO, Braselton WE. 1986. Metabolism of 4,4'-methylenebis(2-chloroaniline) by canine liver and kidney slices. Drug Metab Dispos 14(2):166-174.
- *Manis MO, Williams DE, McCormack KM, et al. 1984. Percutaneous absorption, disposition, and excretion of 4,4'-methylenebis(2-chloroaniline) in dogs. Environ Res 33(1):234-245.
- *Martin CN, McDermid AC. 1981. Testing of 42 coded compounds for their ability to induce unscheduled DNA repair synthesis in HeLa cells. In: deSerres FJ, Ashby J, eds. Evaluation of shortterm tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:533-537.
- *Martire G, Vricella G, Perfumo AM, et al. 1981. Evaluation of the mutagenic activity of coded compounds in the Salmonella test. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:271-279.
- *Mason TJ, Vogler WJ. 1990. Bladder cancer screening at the DuPont Chambers Works: A new initiative. J Occup Med 32(9):874-877.
- *Matsushima T, Takamoto Y, Shirai A, et al. 1981. Reverse mutation test on 42 coded compounds with the E. coli WP2 system. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:387-395.

8. REFERENCES

- *McCann J, Choi E, Yamasaki E, et al. 1975. Detection of carcinogens as mutagens in the Salmonella/microsome test: Assay of 300 chemicals. Proc natl Acad Sci 72:5135-5139.
- *McKerrell PJ, Saunders GA, Geyer R. 1987. Determination of 4,4'-methylenebis(2-chloroaniline) in urine by high-performance liquid chromatography. J Chromatog 408:399-401.
- McQueen CA, Williams GM. 1982. Cytotoxicity of xenobiotics in adult rat hepatocytes in primary culture. Fundam Appl Toxicol 2(3):139-144.
- *McQueen CA, Williams GM. 1987. The hepatocyte primary culture/DNA repair test using hepatocytes from several species. Cell Biology and Toxicology 3(2):209-218.
- McQueen CA, Williams GM. 1990. Review of the genotoxicity and carcinogenicity of 4,4'-methylene-dianiline and 4,4'-methylene-bis-2-chloroaniline. Mutat Res 239(2):133-142.
- *McQueen CA, Maslansky CJ, Crescenzi SB, et al. 1981. The genotoxicity of 4,4'-methylenebis-2-chloroaniline in rat, mouse and hamster hepatocytes. Toxicol Appl Pharmacol 58(2):231-235.
- *McQueen CA, Maslansky CJ, Williams GM. 1983. Role of the acetylation polymorphism in determining susceptibility of cultured rabbit hepatocytes to DNA damage by aromatic amines. Cancer Res 43(7): 3120-3123.
- *Mehta RD, Von Borstel RC. 1981. Mutagenic activity of 42 encoded compounds in the haploid yeast reversion assay, strain XV185-14C. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:414-423.
- *Messerly EA, Fekete JE, Wade DR, et al. 1987. Structure-mutagenicity relationships of benzidine analogues. Environ Mol Mutagen 10(3):263-274.
- Mitchell AD, Myhr BC, Rudd CJ, et al. 1988. Evaluation of the L5178Y mouse lymphoma cell mutagenesis assay: Methods used and chemicals evaluated. Environ Mol Mutagen 12(Suppl 13):1-18.
- Morales R, Rappaport SM, Hermes RE. 1979. Air sampling and analytical procedures for benzidine, 3,3'-dichlorobenzidine and their salts. Am Ind Hyg Assoc J 40(11):970-978.
- Mori H, Tanaka T, niwa K, et al. 1989. Induction of altered hepatocellular foci of hamster for a I possible short-term assay for carcinogens. Res Commun Chem Pathol Pharmacol 63(3):451-454.
:“Mori H, Yoshimi n, Sugie S, et al. 1988. Genotoxicity of epoxy resin hardeners in the hepatocyte primary culture/DNA repair test. Mutat Res 204(4):683-688.
- Morton KC, King CM, Vaught JB, et al. 1983. Prostaglandin H synthase-mediated reaction of carcinogenic arylamines with tRNA and homopolyribonucleotides. Biochem Biophys Res Commun 111(1):96-103.
- *Morton KC, Lee M-S, Siedlik P, et al. 1988. Metabolism of 4,4'-methylenebis-2-chloroaniline (MOCA) by rats in vivo and formation of n-hydroxy MOCA by rat and human liver microsomes. Carcinogenesis 9(5):731-739.

8. REFERENCES

- *Myhr BC, Caspary WJ. 1988. Evaluation of the L5178Y mouse lymphoma cell mutagenesis assay: Intralaboratory results for sixty-three coded chemicals tested at Litton Bionetics, Inc. Environ Mol Mutagen 12(Suppl 13):103-194.
- *Nagao M, Takahashi Y. 1981. Mutagenic activity of 42 coded compounds in the Salmonella/microsome assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1302-313.
- Nakamura S, Oda Y, Oki I, et al. 1986. A simple test system (Umu test) for the detection of Environmental mutagens: 5. Further evaluation of the Umu test as a primary screening for carcinogens. Mutat Res 164:275.
- *NAS/NRC. 1989. Biologic markers in reproductive toxicology. national Academy of Sciences/national Research Council. Washington, DC: national Academy Press, 15-35.
- *NATICH. 1992. Data base report on state, local, and EPA air toxics activities. national Air Toxics Information Clearinghouse. Washington, DC: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. March 12, 1992.
- *Nesnow S, Triplett LL, Slaga TJ, et al. 1985. Carcinogenesis: A comprehensive survey. Volume 8. In: Mass MJ, Kaufman DG, Siegfried JM, eds. Cancer of the respiratory tract: Predisposing factors. new York, nY: Raven Press, 257-277.
- *Niemenen EH, Saarinen LH, Laakso JR. 1983. Simultaneous determination of aromatic isocyanates and some carcinogenic amines in the work atmosphere by reversed-phase high-performance liquid chromatography. J Liq Chromatogr 6(3):453-469.
- NIOSH. 1973. Hazard review of 4,4'-methylene-bis(2-chloroaniline). Rockville, MD: national Institute for Occupational Safety and Health. Document no. PB87-210837.
- NIOSH. 1977. 104-Week carcinogenicity study in male rats 4,4'-methylene-bis(2-chloroaniline) (MOCA). Cincinnati, OH: national Institute for Occupational Safety and Health. Document no. PB83-239475.
- NIOSH. 1978a. Health hazard evaluation determination. Report no. 77-125-547, Amphenol Cadre, Longmont, Colorado. Cincinnati, OH: national Institute for Occupational Safety and Health, Health Hazard and Technical Assistance Branch. Document no. PB81-143794.
- *NIOSH. 1978b. Special hazard review with control recommendations for 4,4'-methylenebis(2-chloroaniline). U. S. Department of Health, Education and Welfare, national Institute for Occupational Safety and Health. Publication no. 78-188.
- *NIOSH. 1984. 1985 Supplement to NIOSH manual of analytical methods. 3rd edition. Cincinnati, OH: Division of Physical Sciences and Engineering, national Institute for Occupational Safety and Health, Department of Health and Human Services. Publication no. 84-100.
- *NIOSH. 1985. Health hazard evaluation report HETA 84-508-1626, Steinmetz and Sons, Moscow, Pennsylvania. Cincinnati, OH: national Institute for Occupational Safety and Health, Hazard Evaluations and Technical Assistance Branch. Document no. PB86-191830.

8. REFERENCES

- *NIOSH 1986a. Health hazards evaluation report HETA 85-407-1692, Parkway Products, Inc.. Contract no. HETA 85-407-1692. Cincinnati, OH: national Institute for Occupational Safety and Health, U.S. Department of Health and Humans Services. Document no. PB87-108023.
- *NIOSH. 1986b. Industrial hygiene survey report, Parkway Products, Inc., Cincinnati, OH. Contract no. IWS-144.13. Cincinnati, OH: national Institute for Occupational Safety and Health, Department of Heath and Human Services. Document no. PB87-222360.
- *NOES. 1992. national Occupational Exposure Survey (1981-1983). Cincinnati, OH: U.S. Department of Health and Human Services, national Institute for Occupational Safety and Health, Division of Surveillance, Hazard Evaluations, and Field Studies (Unpublished provisional data as of 7/1/90).
- *NRC. 1981. Aromatic Amines: An assessment of the biological and Environmental effects. Washington, DC: national Academy Press, p. 19, 168-197.
- *NTP. 1991a. national Toxicology Program: Fiscal Year 1991 Annual Plan, Atlanta, GA: national Toxicology Program, 72-73.
- *NTP. 1991b. national Toxicology Program: Sixth annual report on carcinogens: 1991 Summary. Atlanta, GA. national Toxicology Program.
- *OHM/TADS. 1985. 4,4'-Methylenebis(2-chloraniline). Oil and Hazardous Materials/Technical Assistance Data System. Baltimore, MD: Chemical Information Systems, Inc. December 1985.
- *Okayama A, Ichikawa Y, Yoshida M, et al. 1988. Determination of 4,4'-methylenebis(2-chloroaniline) in urine by liquid chromatography with ion-paired solid-phase extraction and electrochemical detection. *Clin Chem* 34(10):2122-2125.
- *OSHA. 1987. Access to employee exposure and medical records. Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1910.20.
- *OSHA. 1988. Access to employee exposure and medical records. Occupational Safety and Health Administration. Federal Register 53(189): 30163-30164.
- *OSHA. 1989a. Toxic and hazardous substances. Occupational Safety and Health Administration. Code of Federal Regulations. 29 CFR 1910.1000.
- *OSHA. 1989b. Toxic and hazardous substances. Part 1910. Occupational Safety and Health Administration. Federal Register 54(12): 2920-2960.
- *Osorio AM, Clapp D, Ward E, et al. 1990. Biological monitoring of a worker acutely exposed to MBOCA. *Am J Ind Med* 18 (5): 577-589.
- *OTA. 1990. neurotoxicity: Identifying and controlling poisons of the nervous system. Washington, DC: Office of Technology Assessment, U.S. Congress. OTA-BA-436. April 1990.

8. REFERENCES

- *Parkes HG. 1976. The epidemiology of the aromatic amine cancers. In: Searle CE, ed. Chemical carcinogens. Washington, D.C.: American Chemical Society, American Chemical Society Monograph, 173.
- *Parkes HG. 1979. The identification and control of occupational bladder cancer. IARC Sci Publ 25:462-480.
- *Parris GE, Diachenko GW, Entz RC, et al. 1980. Waterborne methylene bis-2-chloroaniline and 2-chloroaniline contamination around Adrian, Michigan. Bull Environ Contam Toxicol 24(4):497-503.
- *Parry JM, Sharp DC. 1981. Induction of mitotic aneuploidy in the yeast strain D6 by 42 coded compounds. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:468-480.
- Pereira MA. 1985. Mouse liver tumor data assessment of carcinogenic activity. In: An International Symposium on Advances in Health Risk Assessment for Systemic Toxicants and Chemical Mixtures. Toxicol Ind Health 1(4):311-334.
- *Perry PE, Thomson EJ. 1981. Evaluation of the sister chromatid exchange method in mammalian cells as a screening system for carcinogens. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:560-569.
- Piegorsch WW, Hoe1 DG. 1988. Exploring relationships between mutagenic and carcinogenic potencies. Mutat Res 196(2):161-176.
- Purchase IFH, Longstaff E, Ashby J, et al. 1978. Mutagenicity studies. Br J Cancer 37:873.
- *“Purnell CJ, Warwick CJ. 1980. Application of electrochemical detection to the measurement of 4,4'-methylenebis(2-chloroaniline) and 2-chloroaniline concentrations in air by high-performance liquid chromatography. Analyst 105(1254):861-867.
- *Purnell CJ, Warwick CJ. 1981. Method 3 - analysis of 3,3'-dichloro-4,4'-diaminodiphenyl methane (MOCA) and 2-chloroaniline in air. In: Egan H, ed. Environmental carcinogens: Selected methods of analysis. Vol. 4: Some aromatic amines and azo dyes in the general and industrial Environment. Lyon, France: World Health Organization, International Agency for Research on Cancer. IARC scientific publication no. 40, 133-140.
- *Rae TK, Dorsey GF, Allen BE, et al. 1982. Mutagenicity of 4,4'-methylenedianiline derivatives in the Salmonella histidine reversion assay. Arch Toxicol 49(3-4):185-190.
- *Rappaport SM, Morales R. 1979. Air-sampling and analytical method for 4,4'-methylenebis (2-chloroaniline). Anal Chem 51(1):19-23.
- *Rice JR, Kissinger PT. 1981. Method for determination of benzidine, 3,3'-dimethoxybenzidine, 4-aminobiphenyl, 3,3'-dichlorobenzidine, and 4,4'-methylene-bis(2-chloroaniline) (MOCA) in soil samples' surface water and groundwater by liquid chromatography with electrochemical detection. In: Egan H, Fishbein L, Castegnaro M, et al. eds. Environmental carcinogens: Selected methods of analysis. Volume 4: Some aromatic amines and azo dyes in the general and industrial environment. Lyon, France: World Health Organization, International Agency for Research on Cancer, 141-151.

8. REFERENCES

- *Rice JR, Kissinger PT. 1982. Liquid chromatography with precolumn sample preconcentration and electrochemical detection: Determination of aromatic amines in Environmental samples. Environ Sci Technol 16(5):263-268.
- Richold M, Jones E. 1981. Mutagenic activity of 42 coded compounds in the salmonella/microsome assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1314-322.
- Ringen K. 1988. Regulate 4,4'-methylene-bis(2-chloroaniline). Am J Ind Med 14(3):255-256.
- *Rosenkranz HS, Hyman J, Leifer 2. 1981. DNA polymerase deficient assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:210-218.
- Rosenkranz HS, Ennever FK, Dimayuga M, et al. 1990. Significant differences in the structural basis of the induction of sister chromatid exchanges and chromosomal aberrations in Chinese hamster ovary cells. Environ Mol Mutagen 16(3):149-177.
- *Rowland I, Severn B. 1981. Mutagenicity of carcinogens and noncarcinogens in the Salmonella/microsome test. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:323-332.
- *Russfield AB, Hornburger F, Boger E, et al. 1975. The carcinogenic effect of 4,4'-methylene-bis-(2-chloroaniline) in mice and rats. Toxicol Appl Pharmacol 31(1):47-54.
- *Sabbioni G, neumann HG. 1990. Quantification of hemoglobin binding of 4,4'-methylenebis (2-chloroaniline) (MOCA) in rats. Arch Toxicol 64(6):451-458.
- Salamone MF. 1981. Toxicity of carcinogens and noncarcinogenic analogues. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:682-685.
- *Salamone MF, Heddle JA, Katz M. 1981. Mutagenic activity of 41 compounds in the *in vivo* micronucleus assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:686-697.
- Savage RE, Weigel WW, Krieg EF. 1992. Induction of ornithine decarboxylase activity by 4,4'-methylenebis(2-chloroaniline) in the rat. Cancer Lett 62:63-68.
- *Sawicki E, Belsky T, Friedel RA, et al. 1975. 3,3'-Dichloro-4,4'-diaminodiphenylmethane (MOCA) in air analytical method. Health Lab Sci 12(4):415-418.
- *Sax nI, Lewis RJ. 1987. Hawley's condensed chemical dictionary. 11th ed. new York, nY: Van nostrand Reinhold Company, 767.
- Schmitt CR, Cagle GW. 1975. Sulfamic acid cleaning solution for 4,4'-methylene-bisorthochloroaniline (MOCA). Am Ind Hyg Assoc J 36(3):181-186.
- *Schulte PA. 1990. Screening for bladder cancer in high-risk groups: Delineation of the problem.

8. REFERENCES

J Occup Med 32(9):789-792.

*Schulte PA, Ward E, Boeniger M, et al. 1988. Occupational exposure to n-substituted aryl compounds. In: King CM, Roman0 LJ, Schuetzle D, et al. eds. Carcinogenic and mutagenic responses to aromatic amines and nitroarenes. new York, nY: Elsevier, 23-35.

*Searle CE, ed. 1984. Chemical carcinogens: Second edition, revised and expanded. ACS Monograph 182. Washington, DC: American Chemical Society, 1:283-284.

*Segerback D, Kadlubar FF. 1992. Characterization of 4,4'-methylenebis(2-chloroaniline)-DNA adducts formed in vi~io and *in vitro*. Carcinogenesis 13:1587-1592.

*Sharp DC, Parry JM. 1981. Induction of mitotic gene conversion by 41 coded compounds using the yeast culture JDI. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1:491-501.

*Shivapurkar n, Lehman TA, Schut HA, et al. 1987. DNA binding of 4,4'-methylenebis(2-chloroaniline) (MOCA) in explant cultures of human and dog bladder. Cancer Lett 38(1-2):41-48.

*Silk nA, Lay JO Jr, Martin Cn. 1989. Covalent binding of 4,4'-methylenebis-2-chloroaniline) to rat liver DNA *in vivo* and of its N-hydroxylated derivative to DNA *in vitro*. Biochem Pharmacol X3(2):279-287.

*Simmon VF, Shepherd CF. 1981. Mutagenic activity of 42 coded compounds in the Salmonella/microsome assay. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 133-342.

*Skarping G, Renman L, Sangoe C, et al. 1985. Capillary gas chromatographic method for the determination of complex mixture of isocyanates and amines. J Chromatogr 346:191-204.

Skarping G, Renman L, Smith BE. 1983. Trace analysis of amines and isocyanates using glass capillary gas chromatography and selective detection: I. Determination of aromatic amines as perfluoro fatty acid amides using electron-capture detection. J Chromatogr 267(2):315-327.

*Skopek TR, Andon BM, Kaden DA, et al. 1981. Mutagenic activity of 42 coded compounds using 8-azaguanine resistance as a genetic marker in *Salmonella typhimurium*. In: deSerres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. Prog Mutat Res 1371-375.]

*Smith AM, Woodward Kn. 1983. 4,4'-Methylene bis-(2-chloroaniline)(MBOCA). Toxic Rev 8, Part 2:1-19.

Smyth WF, Smyth MR. 1987. Electrochemical analysis of organic pollutants. Pure & Appl Chem 59(2):245-256.

Spiegelhalder B. 1983. Carcinogens in the workroom air in the rubber industry. Stand J of Work Environ Health 9(Suppl 2):15-26.

8. REFERENCES

- Steinhoff D, Grundmann E. 1969. Carcinogenic effect of 3,3'-dichloro-4,4'-diaminophenylmethane in rats. *naturwissenschaften* 56(4):215-216.
- Steinhoff D, Grundmann E. 1971. Cancerogenic effect of 3,3'-dichloro-4,4'-diaminodiphenylmethane in rats. *naturwissenschaften* 58(11):578
- Stewart PA, Lee JS, Marano DE, et al. 1991. Retrospective cohort mortality study of workers at an aircraft maintenance facility: II. Exposures and their assessment. *Br J Ind Med* 48(8):531-537.
- Stoner GD. 1988. Metabolism of 4,4'-methylene-bis(2-chloroaniline) in explant cultures of human and dog bladder and dog liver cell cultures. In: Proceeding of the Fourth nCI/EPA/NIOSH Collaborative Workshop: Progress on Joint Environmental and Occupational Cancer Studies, April 22-23, 1986. Rockville, MD: national Institutes of Health. Publication no. 88-2960, 343-350.
- Stoner GD, Shivapurkar nM, Schut HAJ, et al. 1987. Metabolism of 4,4'-methylenebis-2-chloroaniline in explant cultures of human and dog bladder and dog liver cell cultures. In: Symposium on Predictive Toxicology Held at the 16th Conference on Environmental Toxicology. *Toxicology* 47(1-2):205.
- *Stoner GD, Shivapurkar nM, Schut HAJ, et al. 1988. DNA binding and adduct formation of 4,4'-methylene-bis(2-chloroaniline) (MOCA) in explant cultures of human and dog bladder. In: King CM, Roman0 LJ, and Schultzle D, eds. *Carcinogenic and mutagenic responses to aromatic amines and nitroarines*. New York, NY: Elsevier, 237-240.
- *Stula EF, Sherman H, Zapp JA Jr, et al. 1975. Experimental neoplasia in rats from oral administration of 3,3'-dichlorobenzidine, 4,4'-methylene-bis(2-chloroaniline), and 4,4'-methylene-bis(2-methylaniline). *Toxicol Appl Pharmacol* 31:159-176.
- *Stula EF, Barnes JR, Sherman H, et al. 1977. Urinary bladder tumors in dogs from 4,4'-methylenebis(2-chloroaniline) (MOCA). *J Environ Pathol Toxicol* 1(1):31-50.
- *Styles JA. 1981. Activity of 42 coded compounds in the BHK-21 cell transformation test. In: Deserres FJ, Ashby J, eds. *Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program*. *Prog Mutat Res* 1:638-646.
- *Tabak HH, Quave SA, Mashni CI, et al. 1981. Biodegradability studies for predicting the environmental fate of organic priority pollutants. In: *Test protocols for Environmental fate and movement of toxicants. Proceedings of a Symposium of the Association of Official Analytical Chemists 94th Annual Meeting*, Washington, D.C., October 21, 1980. Arlington, VA: AOAC, 267-327.
- Tang C. 1990. [Rapid determination of 4,4'-methylenebis-(2-chloroaniline) by TLC during elastomer synthesis.] *Sepu* 8(6):389-391. (Chinese)
- *Thomas JD, Wilson HK. 1984. Biological monitoring of workers exposed to 4,4'-methylenebis (2-chloroaniline) (MBOCA). *Br J Ind Med* 41(4):547-551.
- *Thomson JA. 1981. Mutagenic activity of 42 coded compounds in the lambda induction assay. In: Deserres FJ, Ashby J, eds. *Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program*. *Prog Mutat Res* 1:224-235.

8. REFERENCES

*Tobes MC Brown LE, Chin B, et al. 1983. Kinetics of tissue distribution and elimination of 4,4'-methylenebis-(2-chloroaniline) in rats. *Toxicol Lett* 17(1-2):69-76.

Tosato ML, Cesareo D, Passerini L, et al. 1988. PLS assessment of the performance of short-term tests for carcinogens. *J Chemometrics* 2(3):171-187.

*Traul KA, Takayama K, Kachevsky V, et al. 1981. A rapid *in vitro* assay for carcinogenicity of chemical substances in mammalian cells utilizing an attachment-independence endpoint: 2. Assay validation. *J Appl Toxicol* 1(3):190-195.

*TRI90. 1992. Toxic Chemical Release Inventory. National Library of Medicine, national Toxicology Information Program, Bethesda, MD.

*Trippel-Schulte P, Zeiske J, Kettrup A. 1986. Trace analysis of selected benzidine and diaminodiphenylmethane derivates in urine by means of liquid chromatography using precolumn sample preconcentration, UV and electrochemical detection. *Chromatographia* 22(1-6):138-146.

*Trueman RW. 1981. Activity of 42 coded compounds in the *Salmonella* reverse mutation test. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:343-350.

*Tsuchimoto T, Matter BE. 1981. Activity of coded compounds in the micronucleus test. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:705-711.

*Tweats DJ. 1981. Activity of 42 coded compounds in a differential killing test using *Escherichia coli* strains WP2, WP67 (*uvrA polA*), and CM871 (*uvrA lexA recA*). In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:199-209.

Uziel M, Munro nB, Katz DS, et al. 1992. DNA adduct formation by 12 chemicals with populations potentially suitable for molecular epidemiological studies. *Mutat Res* 277:35-90.

*Van H Deyrup CA, Kavaler AR, et al., eds. 1992. OPD chemical buyers directory. 79th ed. new York, nY: Schell Publishing Company, Inc., 13, 27-28, 575.

*Van Roosmalen PB, Klein AL, Drummond I. 1979. An improved method for determination of 4,4'-methylenebis-(2-chloroaniline) (MOCA) in urine. *Am Ind Hyg Assoc J* 40(1):66-69.

*Van Roosmalen PB, Klein AL, Drummond I. 1981. Method 8 - determination of 3,3'-dichloro-4,4'diaminodiphenylmethane (MOCA) in urine, In: Egan H, ed. Environmental carcinogens: Selected methods of analysis. Vol 4: Some aromatic amines and azo dyes in the general and industrial environment. Lyon, France: International Agency for Research on Cancer, IARC scientific publications no. 40, 183-191.

*Vantulder PJM, Howard CC, Riggin RM. 1981. High performance liquid chromatographic determination of aromatic amines in body fluid and commercial dyes. In: Choudhary G, ed. Chemical hazards in the workplace: Measurement and control. Washington, DC: ACS Symposium Series 149:413-427.

8. REFERENCES

- *Venitt S, Crofton-Sleigh C. 1981. Mutagenicity of 42 coded compounds in a bacterial assay using *Escherichia coli* and *Salmonella typhimurium*. In: deserres FJ, Ashby J, eds. Evaluation of shortterm tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1351-360.
- *Vogel E, Blijlevens WG, Kortselius MJ, et al. 1981. Mutagenic activity of 17 coded compounds in the sex-linked recessive lethal test in *Drosophila melanogaster*. In: deserres FJ, Ashby J. eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:660-665.
- *Voorman R, Penner D. 1986a. Fate of MBOCA (4,4'-methylene-bis(2-chloroaniline)) in soil. *Arch Environ Contam Toxicol* 15(5):595-602.
- *Voorman R, Penner D. 1986b. Plant uptake of MBOCA (4,4'-methylenebis-(2-chloroaniline)). *Arch Environ Contam Toxicol* 15(5):589-59X
- *WAC. 1988. Control of hazardous pollutants. Wisconsin Administrative Code. Chapter nR 455. Department of natural Resources, Madison, WI, 446-4 - 446-16.
- *Walker CG. 1984. Mutagenesis and inducible responses to deoxyribonucleic acid damage in *Escherichia coli*. *Microbial Rev* 48(1):60-9X
- Wallace DMA. 1988. Occupational urothelial cancer. *Br J of Urology* 61(3):175-182.
- *Wan KC, Dare BR, Street nR. 1989. Biomedical surveillance of workers exposed to 4,4'-methylene-bis-(2-chloroaniline) (MBOCA) in Perth, Western Australia. *J R Soc Health* 109(5):159-165.
- *Ward E, Clapp D, Tolos W, et al. 1986. Efficacy of urinary monitoring for 4,4'-methylenebis-(2-chloroaniline). *J Occup Med* 28(8):637-642.
- *Ward E, Smith AB, Halperin W. 1987. 4,4'-Methylenebis(2-chloroaniline): An unregulated carcinogen. *Am J Ind Med* 12(5):537-549.
- Ward E, Halperin W, Thun M, et al. 1988. Bladder tumors in two young males occupationally exposed to MBOCA. *Am J Ind Med* 14(3):267-272.
- *Ward E, Halperin W, Thun M, et al. 1990. Screening workers exposed to 4,4'-methylenebis-(2-chloroaniline) for bladder cancer by cystoscopy. In: International Conference on Bladder Cancer Screening in High-Risk Groups, September 13-14, 1989. *J Occup Med* 32(9):865-868.
- *Ward E. 1993. Response to "Case study 'Carcinogenesis': The MBOCA TLV example". *Am Ind Hyg Assoc J* 54(8):461-46X
- *Weeks RW Jr, Dean BJ. 1977. Permeation of methanolic aromatic amine solutions through commercially available glove materials. *J Am Ind Hyg Assoc* 38(12):721-725.
- Weigel WW, Savage RE Jr. 1990. Induction of ornithine decarboxylase activity of 4,4'-methylenebis(Zchloroaniline) (MOCA) in the rat. In: Society of Toxicology 29th Annual Meeting, Miami

8. REFERENCES

- Beach, FL, February 12-16, 1990. Washington, D.C.: Society of Toxicology, 760.
- Williams DE. 1979. Progress report on the analysis and control of exposure to 4,4'-methylene bis (2 chloroaniline. Lansing, MI: Michigan Department of Public Health, Division of Occupational Health, Division of Environmental Epidemiology.
- *Williams GM, Laspia MF, Dunkel VC. 1982. Reliability of the hepatocyte primary culture/DNA repair test in testing of coded carcinogens and noncarcinogens. *Mutat Res* 97(5):359-370.
- Wilson JD. 1978. Review of *in vitro* systems with potential for use in teratogenicity screening. *J Environ Pathol Toxicol* 2(1):149.
- Wu K, Leslie CL, Stacy nH. 1989. Effects of mutagenic and non-mutagenic aniline derivatives on rat liver drug-metabolizing enzymes. *Xenobiotica* 19(11):1275-1283.
- *Yasuda SK. 1975. Determination of 3,3'-dichloro-4,4'-diaminodiphenylmethane in air. *J Chromatogr* 104(2):283-290.
- *Yoneyama K, Matsumura F. 1984. Microbial metabolism of 4,4'-methylenebis(2-chloroaniline). *Arch Environ Contam Toxicol* 13(4):501-507.
- *Yoshikura H, Matsushima T. 1981. MLV test (integration enhancement test) of 42 coded compounds in mouse kidney cells. In: deserres FJ, Ashby J, eds. Evaluation of short-term tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:647-650.
- Yun C, Shimada T, Guengerich FP, et al. 1991. Purification and characterization of human liver microsomal cytochrome P-450 2A6. *Mol Pharmacol* 40(5):679-685.
- Yun CH, Shimada T, Guengerich FP. 1992. Contributions of human liver cytochrome P450 enzymes to the n-oxidation of 4,4'-methylene-bis(2-chloroaniline). *Carcinogenesis* 13:217-222.
- Zimmermann FK, Scheel I. 1981. Induction of mitotic gene conversion in strain D7 of *saccharomyces cerevisiae* by 42 coded chemicals. In: deserres FJ, Ashby J, eds. Evaluation of shortterm tests for carcinogens: Report of the International Collaborative Program. *Prog Mutat Res* 1:481-490.