



Jeanne M. Manson, Ph.D.
Senior Managing Scientist

Professional Profile

Dr. Jeanne M. Manson is a Senior Managing Scientist in Exponent's Health Sciences Center for Toxicology and Mechanistic Biology. She has more than 30 years experience in reproductive and developmental toxicology, molecular epidemiology, gene-environment interactions, children's environmental health, and risk assessment. For approximately 10 years, she was a faculty member in the Department of Environmental Health at the University of Cincinnati and developed a variety of *in vivo* and *in vitro* systems for evaluating the developmental toxicity of environmental chemicals. For 15 years, Dr. Manson was Director of Reproductive and Developmental Toxicology at Smith Kline Beckman and Merck Research Labs. During this interval she gained extensive experience in evaluating adverse effects of a wide spectrum of drugs on reproductive function in laboratory animals. Dr. Manson moved to the Postmarketing Surveillance area at Merck and was responsible for conducting pregnancy registries on marketed drugs and vaccines and has interacted extensively with the pharmaceutical industry and the FDA in establishing these types of postmarketing surveillance studies. She returned to academia in 1998 and received a Master's degree in Clinical Epidemiology and Biostatistics with a focus on Molecular Epidemiology and Pharmacoepidemiology. She has been a faculty member at the University of Pennsylvania, Department of Pediatrics, Division of Human Genetics since 2002, and has retained an adjunct appointment at this institution.

Current studies in her laboratory are to understand gene-environment interactions in the pathogenesis of urogenital anomalies, including hypospadias and undescended testes. She is also conducting research to identify new candidate genes for structural birth defects. A bank of human amniocyte cells, DNA and amniotic fluid has been established from amniocentesis specimens. Current studies utilizing this bank include the effects of in utero exposure to endocrine disrupting agents on human fetal steroidogenesis as measured by levels of environmental agents and androgenic hormones in amniotic fluid specimens.

Dr. Manson has served as an expert in birth defects research on many advisory boards, including the Science Advisory Board of the EPA; National Advisory Environmental Health Sciences Council, NIH; Board of Scientific Counselors, National Toxicology Program; and National Academy of Sciences, Committee on Developmental Toxicology. She has been a member of study sections for the Superfund Basic Research grants, and Centers for Children's Environmental Health and Disease Prevention grants. She recently was the Chair of the Acrylamide Expert Panel for the NIEHS/NTP Center for the Evaluation of Risks to Human Reproduction, and has served on numerous NIEHS study sections.

Academic Credentials and Professional Honors

Ph.D., Developmental Biology, Ohio State University, 1974
M.S., Clinical Epidemiology, University of Pennsylvania, 2000
B.A., Biology/Chemistry, Emmanuel College, 1969

Postdoctoral Fellow, Environmental Teratology, University of Cincinnati, 1976

Fellow in General Toxicology, Academy of Toxicological Sciences (1984–present)

Publications

Anand-Ivell R, Ivell R, Driscoll D, Manson J. INSL3 levels in amniotic fluid of human male fetuses. *Hum Reprod* 2008; 23(5):1180–1186.

Wang Y, Barthold J, Figueroa E, Gonzales R, Noh P, Manson J. Analysis of five single nucleotide polymorphisms in the ESR1 gene in cryptorchidism. *Birth Defects Res (Part A)* 2008; 82:482–485.

Wang Y, Barthold J, Kanetsky P, Casalunovo T, Pearson E, Manson J. Allelic variants in HOX genes in cryptorchidism. *Birth Defects Res Part A* 2007; 79(4):269–275.

Manson J, Brabec M, Buelke-Sam J, Carlson G, Chapin R, Favor J, Fischer L, Hattis D, Lees P, Perreault-Darney S, Rutledge J, Smith T, Tice R, Working P. NTP-CERHR expert panel report on the reproductive and developmental toxicity of acrylamide. *Birth Defects Res Part B Dev Reprod Toxicol* 2005; 74(1):17–113.

Barthold JS, Manson JM, Regan V, Si X, Hassink SG, Coughlin MT, Lee PA. Reproductive hormone levels in infants with cryptorchidism during postnatal activation of the pituitary-testicular axis. *J Urol* 2004; 172:1736–1741.

Manson JM, Carr MC. Molecular epidemiology of hypospadias: Review of genetic and environmental risk factors. *Birth Defects Res (Part A)* 2003; 67:825–836.

Manson JM, McFarland B, Weiss S. Evaluation of markers for early detection of pregnancy in an automated database. *Am J Epidemiol* 2001; 154 (2):180–187.

Manson JM, Sammel MD, Freeman EW, Grisso JA. Racial differences in sex hormone levels in women approaching the transition to menopause. *Fertil Steril* 2001; 75(2):297–304.

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Miller RK, Jessee L, Barrish A, Gilbert J, Manson JM. Pharmacokinetic studies of enalaprilat in the perfused human placental lobule system. *Teratology* 1998; 58:1–6.

Ducsay CA, Umezaki H, Kaushal K, Barrish A, Gilbert J, Manson J. Pharmacokinetic and fetal cardiovascular effects of enalaprilat administration to maternal rhesus macaques. *Am J Obstet Gynecol* 1996; 175:50–55.

Manson JM, Freyssinges C, Ducrocq MB, Stephenson WP. Postmarketing surveillance of lovastatin and simvastatin exposure during pregnancy. *Reprod Toxicol* 1996; 10(6):439–446.

Manson JM, Sharrar RG. Unintentional administration of varicella virus vaccine. *MMWR* 1996; 45:1017–1018.

Daston GP, Manson JM. Critical periods of exposure and developmental outcome. *Inhal Toxicol* 1995; 7:863–871.

Frank J, Manson J, Cartwright M. Separation of the epidermis from dermis in Rhesus monkey. *Exp Dermatol* 1995; 4:89–92.

Spence SG, Allen HL, Cukierski MA, Manson JM, Robertson RT, Eydelloth RS. Defining the susceptible period of developmental toxicity for the AT₁-selective Angiotensin II receptor antagonist Losartan in rats. *Teratology* 1995; 51:367–382.

Spence SG, Cukierski MA, Manson JM, Robertson RT, Eydelloth RS. Evaluation of the reproductive and developmental toxicity of the AT₁-selective Angiotensin II receptor antagonist Losartan in rats. *Teratology* 1995; 51:383–397.

Ban Y, Konishi R, Kawana K, Nakatsuka T, Fujii T, Manson J. Embryonic effects of L-691,121, a class III antiarrhythmic agent, in rats. *Arch Toxicol* 1994; 69:65–71.

Minsker D, Manson J, Peter C. Effects of the biphosphate, alendronate, on parturition in the rat. *Toxicol Appl Pharmacol* 1993; 121:217–223.

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- Brown TJ, Manson JM. Further characterization of the distribution and metabolism of nitrofen in the pregnant rat. *Teratology* 1986; 34:129–139.
- Kang YJ, Zolna L, Manson JM. Strain differences in teratogen, nitrofen. *Teratology* 1986; 34:213–223.
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- Manson JM. Mechanism of nitrofen teratogenesis. *Environ Health Perspect* 1986; 70:137–147.
- Manson JM, Guerriero FJ, Brown T, San Sebastian J. Lack of in vivo mutagenicity and testicular toxicity of triamterene in mice. *Fundam Appl Toxicol* 1986; 7:533–546.
- Manson JM, Brown T, Baldwin D. Teratogenicity of nitrofen (2,4-dichloro-4'-nitro diphenyl ether) and thyroid function in the rat. *Toxicol Appl Pharmacol* 1984; 73:323–335.
- Manson JM, Murphy M, Richdale, N. Effects of oral exposure to trichloroethylene on female reproductive function. *Toxicology* 1984; 32:229–242.
- York RG, Manson JM. Neonatal toxicity in mice associated with the Ah^b allele following transplacental exposure to 3-methylcholanthrene. *Toxicol Appl Pharmacol* 1984; 72:417–426.
- York RG, Manson JM. Lung tumorigenesis and hyperplasia in offspring associated with the Ah^d allele with in utero exposure to 3-methylcholanthrene. *Toxicol Appl Pharmacol* 1984; 72:427–439.

Costlow RD, Manson JM. Distribution and metabolism of the teratogen nitrofen (2,4-dichloro-4'-nitro diphenyl ether) in pregnant rats. *Toxicology* 1983; 26:11–23.

Manson JM, Miller ML. Contribution of mesenchymal cell death and mitotic alteration to asymmetric limb malformations induced by MNNG. *Teratogen Carcinogen Mutagen* 1983; 3:335–353.

Manson JM, Boyd C, Papa L. Cell death and persistence of DNA damage in mouse embryo limb buds with *in vivo* exposure to cyclophosphamide. *Teratogen Carcinogen Mutagen* 1982; 2:47–59.

York RG, Sowry B, Hastings L, Manson JM. Evaluation of teratogenicity and neurotoxicity with maternal inhalation exposure to methyl chloroform. *J Toxicol Environ Health* 1982; 9:251–266.

Costlow RD, Manson JM. The target organ in the neonatal death induced by Nitrofen (2,4-dichlorophenyl-*p*-nitrophenyl ether). *Toxicology* 1981; 20:209–227.

Stone LC, Manson JM. Effects of the herbicide 2,4-dichlorophenyl-*p*-nitrophenyl ether (Nitrofen) on fetal lung development in rats. *Toxicology* 1981; 30:195–207.

Bornschein R, Hastings L, Manson JM. Behavioral toxicity in the offspring of rats following maternal exposure to dichloromethane. *Toxicol Appl Pharmacol* 1980; 52:29–37.

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Manson JM, Simons R. *In vitro* metabolism of cyclophosphamide in limb bud culture. *Teratology* 1979; 19(2):149–157.

Manson JM. Human and laboratory animal test systems available for detection of reproductive failure. *Prev Med* 1978; 7:331–332.

Manson JM, O'Flaherty E. Effects of cadmium on salamander survival and limb regeneration. *Environ Res* 1978; 16:62–69.

Bazzoli AS, Manson JM, Scot, WJ, Wilson JG. The effects of thalidomide and two analogues on the regenerating forelimb of the newt, *Notophthalmus viridescens*. *J Embryol Exp Morphol* 1977; 41:125–135.

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Manson JM, Tassava R, Nishikawara M. Denervation effects of aspartate carbamyl transferase, thymidine kinase and uridine kinase in newt regenerates. *Develop Biol* 1976; 50:109–121.

Editorials, Reviews, Chapters

Manson JM. Biological considerations for risk assessment in developmental toxicology. pp. 307–321. In: *Banbury Report 26: Developmental Toxicology: Mechanisms and Risk*, 1997.

Manson JM. Testing of pharmaceutical agents for reproductive toxicity. pp. 379–401. In: *Developmental Toxicology*. Kimmel C, Buelke-Sam J (eds), Raven Press, NY, 1994.

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Manson JM, Kang YJ. Test methods for assessing female reproductive and developmental toxicology. pp. 989–1038. In: *Principles and Methods of Toxicology, Third Edition*. Hayes AW (ed), Raven Press, NY, 1994.

Manson JM. Timing of early development in mammalian species-sensitive periods. pp. 7–16. In: *Developmental Toxicology Preclinical and Clinical Data in Retrospect*. Sundwall A, Davidsson B, Hagberg O, et al. (eds), Tryckgruppen, Stockholm, 1993.

Manson JM. Risk assessment for pharmaceutical products. pp. 27–44. In: *Risk Assessment of Prenatally-induced Adverse Effects*. Neubert D, Kavlock RJ, Merker H-J, Klein J (eds), Springer Verlag, Berlin, 1992.

Manson JM, Mattson BA. Susceptibility of the ovary to toxic effects with age. pp. 365–376. In: *ILSI Monograph on Pathology of Aging Animals, Volume I*. Mohr U, Dungworth D, Capen C (eds), Springer-Verlag, NY, 1992.

Manson JM. An overview and comparison of reproductive and developmental toxicity regulations. pp. 21–34. In: *Current Issues in Reproductive and Developmental Toxicology*. Lumley CE, Walker SR (eds), Quay Publishing, London, UK, 1991.

Manson JM, Wise LD. Teratogens. Chapter 7. pp. 226–256. In: *Casarett and Doull's Toxicology: The Basic Science of Poisons, Forth Edition*. Amdur M, Doull J, Klaassen C (eds), Pergamon Press, NY, 1991.

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Manson JM. Test methods for assessing female reproductive and developmental toxicology. pp. 311–360. In: *Principles and Methods in Toxicology, Second Edition*. Hayes AW (ed), Raven Press, NY, 1989.

Manson JM. Developmental effects of chemical contaminants. Chapter 2. pp. 11–36. In: *Drinking Water and Health, Volume 6*. National Academy of Science, Washington, DC, 1986.

Manson JM. Risk assessment in reproductive toxicology. Chapter 3. pp. 37–104. In: *Drinking Water and Health, Volume 6*. National Academy of Science, Washington, DC, 1986.

Manson JM. Teratogens. Chapter 7. pp. 195–220. In: *Casarett and Doull's Toxicology: The Basic Science of Poisons, Third Edition*. Klaassen C, Amdur M, Doull J (eds), MacMillan Publishing Co., NY, 1986.

Manson JM. Toxicology of selected contaminants: Nitrofen. pp. 85–98. In: *Drinking Water and Health, Volume 6*. National Academy of Science, Washington, DC, 1986.

Manson JM. Mechanism of environmental agents by class associated with adverse female reproductive outcome. pp. 237–248. In: *Reproduction: The New Frontier in Occupational and Environmental Health Research*. Locke J (ed), Alan R. Liss, NY, 1984.

Manson JM, Zenick H, Costlow RD. Teratology test methods for laboratory animals. pp. 141–184. In: *Methods in Toxicology*. Hayes AW (ed), Raven Press, NY, 1982.

Manson JM. Developmental toxicity of alkylating agents: Mechanism of action, Chapter 3. pp. 95–135. In: *Biochemical Mechanisms of Teratogenesis*. Juchau M (ed), Academic Press, NY, 1980.

Manson JM, Simons R. . Influence of environmental agents on male reproductive failure. Chapter 6. pp. 155–179. In: *Work and the Health of Women*. Hunt V (ed), CRC Press, NY, 1979.

Recent Presentations

Manson JM. INSL3 levels in amniotic fluid of human fetuses. Teratology Society Annual Meeting, Monterey, CA June 30, 2008.

Manson JM. Endocrine disruptors. 5th Mid-Atlantic Regional Conference on Occupational Medicine, Johns Hopkins University, MD, October 13, 2007.

Manson JM. Translational research on phthalate exposures and male reproductive tract anomalies. NIEHS, Research Triangle Park, NC, August 29, 2007.

Manson JM. Hypospadias. Teratology Society Annual Meeting, Pittsburg, PA, June 27, 2007.

Manson JM. Hypospadias. 5th Structural Birth Defects Meeting, NICHD, Linthicum Heights, MD, May 8, 2007.

Manson JM. Male reproduction: Molecular toxicology course, University of Pennsylvania, January 9, 2007.

Manson JM. Challenges for an epidemiologist studying the effects of fetal and neonatal exposures on the neonate; study of risk factors for hypospadias. European Council for Plasticizers and Intermediates, Paris, September 8, 2006.

Manson JM. Phthalate levels in infants with and without cryptorchidism; results from a pilot study. European Council for Plasticizers and Intermediates, Paris, September 7, 2006.

Manson JM. Molecular epidemiology of hypospadias: Dissecting genetic and environmental risk factors. National Institute of Child Health and Development, Bethesda MD, August 30, 2006.

Manson JM. Endocrine disruption: From animals to human studies, problems and solutions in moving from animal to human studies. Teratology Society, Tucson AZ, June 26, 2006.

Manson JM. Toxicogenomics of human *in utero* exposure to endocrine disrupting chemicals. Gordon Research Conference: Environmental Endocrine Disruptors, Il Ciocco, Italy, June 6, 2006.

Manson JM, Carr MC. Maternal, paternal and genetic risk factors for hypospadias. Gordon Research Conference: Environmental Endocrine Disruptors, Il Ciocco, Italy, June 5, 2006.

Manson JM, Carr MC. Genetic and environmental risk factors for hypospadias. Seminar in Pediatrics, Massachusetts General Hospital, Boston, MA, March 14, 2006.

Manson JM, Carr MC. Environmental risk factors for hypospadias. 4th Structural Birth Defects Meeting, NICHD, Potomac, MD, October 6, 2005.

Manson JM. Gene expression profiling to determine in utero exposure to environmental agents. Conversations in Environmental Toxicology, University of Pennsylvania Department of Pharmacology, September 27, 2005.

Manson JM. Preclinical data and its value to the clinician: Epidemiologic perspectives and considerations. Teratology Society, St Petersburg, FL, June 28, 2005.

Manson JM, Carr MC. Genetic and environmental risk factors for hypospadias. Teratology Society, St. Petersburg, FL, June 28, 2005.

Manson, JM. Genomics of human fetal morphogenesis. NIEHS Molecular Epidemiology Grantee Meeting, Research Triangle Park, NC, June 8, 2005.

Manson JM, Carr MD. Genetic and environmental risk factors for hypospadias. 2nd Annual Joseph Stokes, Jr., Scientific Symposium, Bryn Mawr, PA, April 29, 2005.

Manson JM. Genetic and environmental risk factors for hypospadias. Neonatology Research Seminar, CHOP, Philadelphia, PA, March 18, 2005.

Manson JM, Carr MD. Mutations in steroid 5 α reductase type 2 and the severity of hypospadias. EPA STAR Symposium, Philadelphia, PA, October 28, 2004.

Manson JM, Carr MD. Population stratification in a case control association study of hypospadias. 32nd Conference of the European Teratology Society, Thessaloniki, Greece, September 20, 2004.

Prior Experience

Adjunct Associate Professor, Department of Pediatrics, Division of Human Genetics, University of Pennsylvania School of Medicine, 2008–

Research Associate Professor, Department of Pediatrics, Division of Human Genetics, University of Pennsylvania School of Medicine, 2003–2008

Director, Worldwide Product Safety & Epidemiology Merck Research Laboratories, 1995–1998

Director, Reproductive & Developmental Toxicology Merck Research Laboratories, 1989–1995

Director, Reproductive & Developmental Toxicology Smith Kline & French Beckman Laboratories, 1983–1989

Associate Professor of Environmental Health and Obstetrics/Gynecology with tenure, University of Cincinnati College of Medicine, 1980–1983

Assistant Professor of Environmental Health, University of Cincinnati College of Medicine, 1976–1980

Editorial Positions

- Associate Editor, Teratogenesis, Carcinogenesis and Mutagenesis, 1979–1989
- Editorial Board, Toxicology and Applied Pharmacology, 1981–1991
- Editorial Board, Reproductive Toxicology, 1999–2002
- Associate Editor, Birth Defects Research, 2002–2005

Professional Honors

- Chair, Workshop on an Approach to Using Toxicogenomic Data in US EPA Human Health Risk Assessments: A Dibutyl Phthalate Case Study, US EPA (2009–)
- Study Section Biological Response Indicators of Environmental Stress, NIEHS (2007–present)
- Study Section Training and Conference Grant Applications, NIEHS (2006–present)
- Study Section Occupational Exposure Risk on Reproduction, CDC/NIOSH (2005–present)
- Chair, Acrylamide Expert Panel, NIEHS NTP Center for the Evaluation Risks to Human Reproduction (2004–present)
- Study Section Superfund Basic Research Grants, NIEHS (2004–2007)
- Study Section Centers for Children’s Environmental Health and Disease Prevention, NIEHS (2003–2006)
- Consultant to the American Chemistry Council, Endocrine Technical Panel (2001–2002)
- Consultant to the FDA on Labeling of Drugs for Use in Pregnancy and Registries (1998–2002)
- National Academy of Sciences, Committee on Developmental Toxicology (1997–2001)
- U.S. Pharmaceutical Representative for Reproductive Toxicology, International Conference for Harmonization (1991–1996)
- Scientific Achievement Award, Society of Toxicology (1988)
- NIEHS Study Section, Superfund Basic Research Program (1987–1988)
- National Academy of Sciences, Safe Drinking Water Committee (1983–1985)
- Board of Scientific Counselors, National Toxicology Program (1983–1986)
- Science Review Panel for Health Research, EPA: Study Section for review of EPA grants (1981–1985)
- National Advisory Environmental Health Sciences Council, NIH (1979–1982)
- Marine & Freshwater Biomedical Center Grant Program NIEHS, site visits and study section meetings (1978–1980)
- Science Advisory Board, Health Effects Panel, EPA (1978–1980)