

## CURRICULUM VITAE

### DAVID A. EASTMOND

Professor, Environmental Toxicology Graduate Program, and Professor and Chair, Department of Cell Biology & Neuroscience, University of California, Riverside.

BIRTH: 23 March 1956

ADDRESS: Department of Cell Biology & Neuroscience  
2109 Biological Sciences Building  
University of California,  
Riverside, California 92521  
(951) 827-4497 [telephone]  
(951) 827-3087 [fax]  
david.eastmond@ucr.edu [E-mail]

EDUCATION: University of California, Berkeley, California, Ph.D., Environmental Health Sciences (Toxicology), 1987.

Brigham Young University, Provo, Utah, M.S., Entomology, 1983.

Brigham Young University, Provo, Utah, B.S., Zoology, 1980.

#### PROFESSIONAL EXPERIENCE:

Professor, Environmental Toxicology Graduate Program and Department of Cell Biology & Neuroscience, University of California, Riverside, California; Assistant professor 1990-1996, Associate professor 1996-2000, Professor 2000-present, Graduate Program Chair, 1999-2004, 2005-08, Interim Director, UC Washington Center and UC Sacramento programs at UCR, 2007-08; Department Chair, 2008-present.

Assistant Research Toxicologist, Department of Biomedical and Environmental Health Sciences, University of California, Berkeley, California, 1989.

Alexander Hollaender Distinguished Postdoctoral Fellow in Genetic and Molecular Toxicology, Biomedical Sciences Division, Lawrence Livermore National Laboratory, University of California, Livermore, California, 1987-1989.

Research assistant in biochemical toxicology, University of California, Berkeley, California, 1983-1987.

Intern with the Environmental Effects Branch, Office of Toxic Substances, Environmental Protection Agency, Washington, D.C., 1983.

Research assistant in environmental toxicology, Brigham Young University, Provo, Utah. 1979-1983.

Field supervisor for a seed alfalfa integrated pest management project directed by Utah State University, Delta, Utah, summer 1979.

Field technician conducting environmental impact-related studies directed by BYU for the Department of Energy, Raft River, Idaho, summer 1978.

TEACHING  
EXPERIENCE:

Instructor for a graduate-level Principles of Toxicology course (ENTX 201) at UC Riverside

Instructor for a graduate-level and an undergraduate level Risk Assessment courses (ENTX 154 & 220) at UC Riverside.

Lead instructor for a graduate-level seminar course (ENTX 270) at UC Riverside

Lead instructor and co-instructor for a graduate-level Mechanisms of Toxicity course (ENTX 202) at UC Riverside

Co-instructor for an undergraduate-level Cancer Biology course (ENTX 150) at UC Riverside

Instructor for freshman-advising seminars (NASC 91 and 93) at UC Riverside

Instructor for an Environmental Toxicology course (Env. Sci. X100) taught through the UC Riverside Extension.

Teaching assistant in the General Biology, Introductory Entomology, Human Physiology, and Comparative Toxicology classes at Brigham Young University.

OTHER PROFESSIONAL  
EXPERIENCE:

Member, Chemical Assessment Advisory Committee, Science Advisory Board, U.S. Environmental Protection Agency, Nov. 4, 2013 – Sept. 30, 2016

Member, Carcinogen Identification Committee, Science Advisory Board, Office of Environmental Health and Hazard Assessment, State of California, 1999 - 2003, 2005 to present.

Associate Director, NIEHS Training Program in Environmental Toxicology at University of California, Riverside, July 1, 2010 – present.

Member, Genotoxicity Test Guidelines Working Group, Organisation for Economic Cooperation and Development Sept. 2010 – present.

Member, Genetic Toxicology Technical Committee Steering Team, Health and Environmental Sciences Institute, International Life Sciences Institute, Jan. 2013 – present.

Member, Working Group on Quantitative Approaches and Non-Linear Dose-Response Relationships in Genotoxicity Assessment, International Working Group on Genotoxicity Testing, Jan. 2013 – present.

Chair, Board of Scientific Counselors, National Toxicology Program, NIEHS, Member, Jan. 2009 – Dec. 2012, Chair, Feb. 2011 – Dec. 2012.

Participant, Research Participation Program, National Center for Environmental Assessment, Environmental Protection Agency, 2008 – 2011.

Co-chair, Expert Panel on Genotoxicity Testing of Pharmaceuticals, Center for Drug Evaluation and Research, Food and Drug Administration, Jan. 2010.

Member, Risk and Technology Review Panel, Science Advisory Board, Environmental Protection Agency, July 2009 - Jan. 2010.

Council Member, National Council on Radiation Protection and Measurements, 2004 to 2010; consociate member, 2010 - present.

Editorial board member for the journals *Toxicological Sciences* (2007 – present), *Mutation Research*, *Genetic Toxicology and Environmental Mutagenesis* (1994 - present), and *Chemico-Biological Interactions* (1998 - 2001).

Member, Working group, International Agency for Research on Cancer, Working group meeting on pharmaceuticals, Oct. 2008.

Chair, WHO/IPCS international expert meetings to conduct an update of the "IPCS harmonization of methods for the prediction and quantification of human carcinogenic/mutagenic hazard", April 2007 and June 2008.

Working group member, International Agency for Research on Cancer, Working group meeting on ethylene oxide, 1,3-butadiene, vinyl chloride, vinyl bromide, and vinyl fluoride, June 2007.

Advisor to the US Environmental Protection Agency and conducted detailed reviews of the following topics: Chemical and radiation-induced leukemogenesis in humans and rodents and the value of rodent models for assessing risks of lymphohematopoietic cancers, 1995-96; The use of genetically modified animals in the cancer risk assessment process, 2001; Genotoxicity of carbon tetrachloride and its implications for mode-of-action and dose response decisions, 2006; Conducted a review of the literature on "Childhood leukemia: origins and biomarkers" 2005-2006; Conduced a review of the genotoxicity and mode-of-action sections of the draft toxicological review of 1,2,3-trichloropropane (NCEA-S-1669), 2007; Lymphohematopoietic Cancers Induced by Chemicals and Other Agents: Overview and Implications for Risk Assessment, 2012.

Invited expert for the USEPA "Peer Consultation Workshop on Research Needs Related to the IRIS Draft Toxicological Review of Naphthalene", April 2005

Invited specialist, International Agency for Research on Cancer, Working Group meeting on Formaldehyde, 2-butoxyethanol, and propylene glycol mono-t-butyl ether, June 2004.

Program chair, 34<sup>th</sup> Annual meeting of the Environmental Mutagen Society, Miami Beach, Florida, May 10-14, 2003.

Member, ILSI Risk Science Institute Steering Committee for Screening Tests for Toxic Chemicals, 2002-05.

Reviewer of Public Health Goal Documents, Risk Assessment Documents or Proposed Guidelines for the US Environmental Protection Agency (EPA), 1999, 2004 and the California EPA, Office of Environmental Health Hazard Assessment, 1998, 2001, 2002, 2004, 2005, 2006, 2008.

Invited participant to the ILSI/Health Canada peer consultation panel on "Genotoxicity for Categorisation of "Inherent Toxicity" to Humans under CEPA '99", 2002.

Council member, Environmental Mutagen Society, April 1997-2000.

Panel member, US Environmental Protection Agency's Expert Panel Peer Review of Benzene Risk Assessment Update, June-July 1997.

Research associate, Statewide Air Pollution Research Center, Riverside, California.

Invited participant in the World Health Organization's International Programme on Chemical Safety Task Group to finalize the Environmental Health Criteria for Hydroquinone. Carshalton Surrey, United Kingdom May 1993.

Reviewer of manuscripts for *American Journal of Human Genetics*; *Archives of Biochemistry and Biophysics*; *Archives of Environmental Contamination and Toxicology*; *Biochemie*; *British Journal of Cancer*; *Bulletin of Environmental Contamination and Toxicology*; *Cancer Epidemiology, Biomarkers and Prevention*; *Cancer Letters: Cancer Research*; *Chemico-Biological Interactions*; *Critical Reviews in Toxicology*; *Cytometry*; *Environmental and Molecular Mutagenesis*; *Environmental Health Perspectives*; *Environmental Pollution*; *Environmental Science & Technology*; *Environmental Toxicology & Pharmacology*; *Genes, Chromosomes and Cancer*; *Genetics and Molecular Biology*; *Human Genetics*; *International Journal of Environmental Research and Public Health*; *International Journal of Environmental Research and Public Health*; *International Journal of Radiation Biology*; *Journal of Agriculture and Food Chemistry*; *Journal of Toxicology and Environmental Health*; *Leukemia*; *Mutagenesis*; *Mutation Research*; *Oncology Research*; *Pediatrics*; *Proceedings of the National Academy of Sciences*; *Toxicological Sciences*; *Radiation Research*; *Toxicology Letters*; *Toxicology and Applied Pharmacology*; *Vaccine*. 1987-present.

Member of the Society of Toxicology's ad hoc Tox 90s Educational Issues Task Force 1991-1993.

Reviewer of Grant Proposals, Pre-proposals/Fellowship Applications, or Cooperative Research Agreements for the U.S. Environmental Protection Agency (1989), the Air Force Office of Scientific Research (1990), Center for Indoor Air Research (1995), NIEHS Small Business Grants (1995, 96,

97, 03), Flanders (Belgium) Fund for Scientific Research (1998), UC MEXUS (2003), Health Effects Institute (1994, 2005), University of California Biotechnology Research and Education Program (2005 and 2006), University of California Toxic Substances Research and Teaching Program (1992, 2007 and 2008).

Invited Participant in a peer review session to recommend acceptable levels of polycyclic aromatic hydrocarbons in the Great Lakes for the International Joint Commission, 1982.

Selected Participant in a tropical biology research project on the function of buttressing in tropical trees, Barro Colorado Island, Panama, 1982.

Participant in a marine biology field experience, focusing primarily on intertidal ecology, Friday Harbor, Washington, 1980.

#### AWARDS AND RECOGNITIONS:

Article by Bhat, Hester, Nesnow and Eastmond was selected as “One of the Best Papers Advancing the Science of Risk Assessment” by the Risk Assessment Specialty Section of the Society of Toxicology at its 2014 annual meeting, March 2014.

Recipient of the Perry J. Gehring Best Graduate Student Abstract Mentor Award by the Risk Assessment Specialty Section of the Society of Toxicology at its 2013 annual meeting, March 2013.

Elected Fellow of the Collegium Ramazzini, Nov. 2011

Jefferson Science Fellow, US Department of State (administered by the National Academy of Sciences), Washington DC, 2004-2005.

President, Environmental Mutagen Society, May 2003-Oct. 2004.

Outstanding Environmental Toxicology Faculty/Mentor award presented by the students of the Environmental Toxicology Graduate Program, University of California, Riverside, 2001, 2007 and 2011.

Alexander Hollaender Distinguished Postdoctoral Fellow, U.S. Dept. of Energy, 1987-1989.

Outstanding Postdoctoral Research Presentation, Genetic and Environmental Toxicology Association of Northern California, 1988.

Selected New Investigator, Society of Toxicology, 1987.

Recipient of the Margaret Beattie Award for Excellence in the Laboratory Sciences, School of Public Health, U.C. Berkeley, 1987.

Honorable Mention, Society of Toxicology Mechanisms Award, 1987.

Outstanding Graduate Student Research Presentation, Genetic and Environmental Toxicology Association of Northern California, 1986.

Thesis selected as the Outstanding Thesis of the College of Biological and Agricultural Sciences at BYU, 1983.

Various Fellowships and Traineeships, U.C. Berkeley, 1983-1987.

Sigma Xi Research Society, 1982.

Phi Kappa Phi Honor Society, 1980.

Alvin S. Barrett Scholarship, Brigham Young Univ., 1974-75, 1977-80.

SOCIETY

MEMBERSHIPS:

Environmental Mutagenesis and Genomics Society

Society of Toxicology (National and Southern California Chapters)

Collegium Ramazzini

American Association for the Advancement of Science

## BIBLIOGRAPHY

David A. Eastmond, Ph.D.

### PUBLICATIONS

1. Vassilaros, D.L., Eastmond, D.A., West, W.R., Booth, G.M., and Lee, M.L. (1982). Determination and Bioaccumulation of Polycyclic Aromatic Sulfur Heterocycles in Aquatic Biota. In: Polynuclear Aromatic Hydrocarbons: Physical and Biological Chemistry, M. Cooke, A.J. Dennis, and G.L. Fisher (Eds.), Battelle Press, Columbus, pp. 845-857.
2. Porter, S., and Eastmond, D.A. (1982). *Euryopsis coki* (Therididae), A Spider that Preys on *Pogonomyrmex* Ants. *J. Arachnology* 10, 275-277.
3. Eastmond, D.A., Meuhle, C.M., Price, R.L., Hutchens, C.A., Booth, G.M., and Lee, M.L. (1983). Acute Toxicity, Bioconcentration, and Elimination of a Coal Liquid in Freshwater Organisms. In: Polynuclear Aromatic Hydrocarbons: Formation, Metabolism, and Measurement, M. Cooke and A.J. Dennis, (Eds.), Battelle Press, Columbus, pp. 451-469.
4. Eastmond, D.A. (1983). Toxicity, Accumulation, and Elimination of Polycyclic Aromatic Sulfur Heterocycles in *Daphnia magna*. Master's Thesis, Brigham Young University.
5. Fluck, D.S., Rappaport, S.M., Eastmond, D.A., and Smith, M.T. (1984). Conversion of 1-Naphthol to Naphthoquinone Metabolites by Rat Liver Microsomes: Demonstration by HPLC with Reductive Electrochemical Detection. *Arch. Biochem. Biophys.* 235, 351-358.
6. Eastmond, D.A., Booth, G.M., and Lee, M.L. (1984). Toxicity, Accumulation, and Elimination of Polycyclic Aromatic Sulfur Heterocycles in *Daphnia magna*. *Arch. Environ. Contam. Toxicol.* 13, 105-111.
7. Smith, M.T., Fluck, D.S., Eastmond, D.A., and Rappaport, S.M. (1985). Detection of Quinone Metabolites by HPLC with Reductive Electrochemical Detection. *Life Chemistry Reports* 3, 250-258.
8. Lipnick, R.L., Bickings, C.K., Johnson, D.E., and Eastmond, D.A. (1985). Comparison of QSAR Predictions with Fish Toxicity Screening Data for 110 Phenols. In: Aquatic Toxicology and Hazard Assessment, Eighth Symposium, ASTM STP 891, R.C. Bahner and D. J. Hensen, (Eds.), American Society for Testing and Materials, Philadelphia, pp. 153-176.
9. Eastmond, D.A., Smith, M.T., Ruzo, L.O., and Ross, D. (1986). Metabolic Activation of Phenol by Human Myeloperoxidase and Horseradish Peroxidase. *Molecular Pharmacology* 30, 674-679.
10. Eastmond, D.A., French, R.C., Ross, D., and Smith, M.T. (1987). Metabolic Activation of Diethylstilbestrol by Human Leukocytes. *Cancer Letters* 35, 79-86.
11. Eastmond, D.A. (1987). Free Radical Mechanisms in Benzene Toxicity. Doctoral Dissertation, University of California, Berkeley.

12. Eastmond, D.A., French, R.C., Ross, D., and Smith, M.T. (1987). Metabolic Activation of Phenol and 1-Naphthol by Human Leukocytes and a Xanthine Oxidase System. *Chemico-Biological Interactions*, 63, 47-62.
13. Smith, M.T., Eastmond, D.A., and Di Monte, D. (1987). The Activation and Detoxication of Quinones by DT-Diaphorase. *Chemica Scripta*, 27A, 105-107.
14. Eastmond, D.A., Smith, M.T., and Irons, R. (1987). An Interaction of Benzene Metabolites Reproduces the Myelotoxicity Observed with Benzene Exposure. *Toxicol. Appl. Pharmacol.*, 91, 85-95.
15. Warren, S.D., Black, H.L., Eastmond, D.A., and Whaley, W.H. (1988). Structural Function of Buttresses of *Tachigalia versicolor*. *Ecology* 69, 532-536.
16. Eastmond, D.A. and Tucker, J.D. (1989). Identification of Aneuploidy-inducing Agents Using Cytokinesis-blocked Human Lymphocytes and an Antikinetochore Antibody. *Environmental and Molecular Mutagenesis* 13, 34-43.
17. Smith, M.T., Yager, J.W., Steinmetz, K.L., and Eastmond, D.A. (1989). Peroxidase-dependent Metabolism of Benzene's Phenolic Metabolites and its Potential Role in Benzene Toxicity and Carcinogenicity. *Environmental Health Perspectives*, 82, 23-29.
18. Eastmond, D.A. and Pinkel, D. (1989). Aneuploidy Detection by Analysis of Interphase Nuclei Using Fluorescence *In Situ* Hybridization with Chromosome-Specific Probes. In: *Mechanisms of Chromosome Distribution and Aneuploidy*, M.A. Resnick and B.K. Vig (Eds.), Alan R. Liss, New York, pp. 277-284.
19. Eastmond, D.A., Tucker, J.D., and Pinkel, D. (1989). The Use of an Antikinetochore Antibody and DNA Probes to Measure Aneuploidy in Interphase Human Lymphocytes. In: *Multilevel Health Effects Research: From Molecules to Man*, J.F. Park and R.A. Pelroy (Eds.), Battelle Press, Richland, WA, pp. 157-165.
20. Eastmond, D.A. and Tucker, J.D. (1989). Kinetochore Localization in Micronucleated Cytokinesis-Blocked Chinese Hamster Ovary Cells: A New and Rapid Assay for Identifying Aneuploidy-Inducing Agents. *Mutation Res.* 224, 517-525.
21. Yager, J.W., Eastmond, D.A., Robertson, M.L., Paradisin, W.M., and Smith, M.T. (1990). Characterization of Micronuclei Induced in Human Lymphocytes by Benzene Metabolites. *Cancer Res.* 50, 393-399.
22. Tucker, J.D. and Eastmond, D.A. (1990). Use of an Antikinetochore Antibody to Discriminate Between Micronuclei Induced by Aneuploidogens and Clastogens. In: *Mutation and the Environment, Part B: Metabolism, Testing Methods, and Chromosomes*, ML Mendelsohn and RJ Albertini, Wiley-Liss, Inc. pp. 275-284.
23. Smith, M.T., Robertson, M.R., Yager, J.W., and Eastmond, D.A. (1990). Role of Metabolism in Benzene-induced Myelotoxicity and Leukemogenesis. In: *Mutation and the Environment, Part B: Metabolism, Testing Methods, and Chromosomes*, ML Mendelsohn and RJ Albertini, Wiley-Liss, Inc. pp. 125-136.



24. Eastmond, D.A. and Smith, M.T. (1990). Xenobiotic Activation by Stimulated Human Polymorphonuclear Leukocytes and Myeloperoxidase. *Methods in Enzymology* 186:579-585.
25. Eastmond, D.A. and Pinkel, D. (1990). Detection of Aneuploidy and Aneuploidy-inducing Agents in Human Lymphocytes using Fluorescence *In Situ* Hybridization with Chromosome-specific DNA Probes. *Mutation Res.* 234, 303-318.
26. Kolachana, P., Subrahmanyam, V.V., Eastmond, D.A., and Smith, M.T. (1991). Metabolism of Phenylhydroquinone by Prostaglandin (H) Synthase: Possible Implications in *o*-Phenylphenol-induced Bladder and Kidney Carcinogenesis. *Carcinogenesis* 12, 145-149.
27. Robertson, M.L., Eastmond, D.A., and Smith, M.T. (1991). Two Benzene Metabolites, Catechol and Hydroquinone, Produce a Synergistic Genotoxic Response in Cultured Human Lymphocytes. *Mutation Research* 249, 201-209.
28. Subrahmanyam, V.V., Ross, D., Eastmond, D.A., and Smith, M.T. (1991). Potential Role of Free Radicals in Benzene-induced Myelotoxicity and Leukemia. *Free Radical Biology & Medicine* 11, 495-515.
29. Eastmond, D.A. (1993). Induction of Micronuclei and Aneuploidy by the Quinone-forming Agents Benzene and *o*-Phenylphenol. *Toxicology Lett.* 67, 105-118.
30. Eastmond, D.A., Rupa, D.S., Chen, H.W. and Hasegawa, L. (1993). Multicolor Fluorescence *In Situ* Hybridization with Centromeric DNA Probes as a New Approach to Distinguish Chromosome Breakage from Aneuploidy in Interphase Cells and Micronuclei, In: *Chromosome Segregation and Aneuploidy*, BK Vig (Ed.), Springer-Verlag, Berlin, pp. 377-390.
31. Eastmond, D.A., Rupa, D.S., and L.S. Hasegawa (1994). Detection of Hyperdiploidy and Chromosome Breakage in Interphase Human Lymphocytes Following Exposure to the Benzene Metabolite Hydroquinone Using Multicolor Fluorescence *In Situ* Hybridization with DNA Probes. *Mutation Res.* 322, 9-20.
32. Chen, H.W., Rupa, D.S., Tomar, R., and D.A. Eastmond (1994). Chromosomal Loss and Breakage in Mouse Bone Marrow and Spleen Cells Exposed to Benzene *In Vivo*. *Cancer Res.* 54, 3533-3539.
33. Lambert, A.C. and Eastmond, D.A. (1994). Genotoxic Effects of the *o*-Phenylphenol Metabolites Phenylhydroquinone and Phenylbenzoquinone in V79 Cells. *Mutation Res.* 322, 243-256.
34. Chen, H.W., Tomar, R., and D.A. Eastmond (1994). Detection of Hydroquinone-induced Nonrandom Breakage in the Centromeric Heterochromatin of Mouse Bone Marrow Cells Using Multicolor Fluorescence *In Situ* Hybridization with the Mouse Major and Minor Satellite Probes. *Mutagenesis* 9, 563-569.
35. Dobo, K.E. and Eastmond, D.A. (1994). The Role of Oxygen Radicals in the Chromosomal Loss and Breakage Induced by the Quinone-Forming Compounds Hydroquinone and *tert*-Butylhydroquinone. *Environ. Molecul. Mutagen.* 24, 293-300.

36. Dobo, K.L., Giver, C.R., Eastmond, D.A., Rumbos, H.S. and A.J. Grosovsky (1995). Extensive Loss of Heterozygosity Accounts for Differential Mutation Rate on Chromosome 17q in Human Lymphoblasts. *Mutagenesis* 10, 53-58.
37. Rupa, D.S., Hasegawa, L. and D.A. Eastmond (1995). Detection of chromosomal breakage in the 1cen - 1q12 region of interphase human lymphocytes using multicolor fluorescence *in situ* hybridization with tandem DNA probes. *Cancer Res.* 55, 640-645.
38. MacGregor, J.T., Tucker, J.D., Eastmond, D.A. and Wyrobek, A.J. (1995). Integration of Cytogenetic Assays with Toxicology Studies. *Environ. Molecul. Mutagen.* 25, 328-337.
39. Eastmond, D.A. and Rupa, D.S. (1995). Fluorescence *In Situ* Hybridization: Application to Environmental Mutagenesis. In: *Environmental Mutagenesis*, (D.H. Phillips and S. Venitt, eds.), Bios Scientific Publishers, Oxford, United Kingdom. pp. 261-290.
40. Chen, H. and Eastmond, D.A. (1995). Synergistic Increase in Chromosomal Breakage Within the Euchromatin Induced by an Interaction of the Benzene Metabolites Phenol and Hydroquinone in Mice. *Carcinogenesis* 16, 1963-1969.
41. Hasegawa, L.S., Rupa, D.S. and Eastmond, D.A. (1995) A Method for the Rapid Generation Of *Alpha*- And Classical Satellite Probes for Human Chromosome 9 by Polymerase Chain Reaction Using Genomic DNA And their Application To Detect Chromosomal Alterations In Interphase Cells *Mutagenesis* 10, 471-476.
42. Chen, H. and Eastmond, D.A. (1995) Topoisomerase Inhibition By Phenolic Metabolites: A Potential Mechanism For Benzene's Clastogenic Effects. *Carcinogenesis* 16: 2301-2307.
43. Eastmond, D.A., Schuler, M. and Rupa, D.S. (1995) Advantages and Limitations of Interphase Analysis using Fluorescence *in situ* Hybridization for the Detection of Aneuploidy in Human Cells. *Mutation Res.* 348, 153-162.
44. Arey, J., Atkinson, R., Sasaki, J., Gupta, P., Eastmond, D.A. and Grosovsky, A.J. (1995) Atmospheric Transformation Reactions of 2-4 Ring Polycyclic Aromatic Hydrocarbons and the Formation of Mutagenic Products. In: "Ecotoxicology of Air Compartment", Communications of the International Symposium in Rouen, Society of Fundamental and Applied Ecotoxicology Congress, pp. 15-22.
45. Frantz, C.E., Chen, H. and Eastmond, D.A. (1996) "Inhibition of Human Topoisomerase II *in vitro* by Bioactive Benzene Metabolites" *Environ. Health Perspect.* Vol. 104, Suppl. 6, 1319-1323.
46. Cranor, C.F., Fischer, J.G. and Eastmond, D.A. (1996) "Judicial boundary drawing and the need for context-sensitive science in toxic torts after *Daubert v. Merrell-Dow Pharmaceutical*" *Virginia Environmental Law Journal* 16:1-77.
47. Tucker, J.D., Eastmond, D.A. and Littlefield, L.G. (1997) "Cytogenetic endpoints as biological dosimeters and predictors of risk in epidemiological studies". In: Application of Biomarkers in Cancer Epidemiology, P. Toniolo, P. Boffetta, D.E.G. Shuker, N. Rothman, B. Hulka and N. Pearce (Eds.) IARC Scientific Publications No. 142, International Agency for Research on Cancer, Lyon, pp. 185-200.

48. Schuler, M., Rupa, D.S. and Eastmond, D.A. (1997) "A critical evaluation of centromeric labeling to distinguish micronuclei induced by chromosomal loss and breakage *in vitro*". Mutation Res. 392: 81-95.
49. Rupa, D.S., Schuler, M. and Eastmond, D.A. (1997) "Detection of hyperdiploidy and breakage affecting the 1cen-1q12 region of cultured interphase human lymphocytes treated with various genotoxic agents" Environ. Mol. Mutagen. 29:161-167.
50. Rupa, D.S., Hasegawa, L.S., and Eastmond, D.A. (1997) "Detection of chromosomal alterations affecting the 1cen-1q12 region in irradiated granulocytes and lymphocytes by multicolor FISH with tandem DNA probes" Mutagenesis 12:195-200.
51. Ramirez, P., Eastmond, D.A., Laclette, J.P. and Ostrosky-Wegman, P. (1997) Disruption of microtubule assembly and spindle formation as a mechanism for the induction of aneuploid cells by sodium arsenite and vanadium pentoxide, Mutation Res. 386:291-298.
52. Dopp, E., Schuler, M., Schiffmann, D. and Eastmond, D.A. (1997) Induction of micronuclei, hyperdiploidy and chromosomal breakage affecting the centric/pericentric regions of chromosome 1 and 9 in human amniotic fluid cells after treatment with asbestos and ceramic fibers, Mutation Res. 377:77-87.
53. Sasaki, J.C., Arey, J., Eastmond, D.A., Parks, K. and Grosovsky, A.G. (1997) Genotoxicity induced in human lymphoblasts by atmospheric reaction products of naphthalene and phenanthrene, Mutation Res. 393:23-35.
54. Kwok, E.S.C. and Eastmond, D.A. (1997) Effects of pH on non-enzymatic oxidation of phenylhydroquinone: Potential role in the urinary bladder carcinogenesis induced by *ortho*-phenylphenol in Fischer 344 Rats, Chem. Res. Toxicol. 10:742-749.
55. Dobo, K.L., Eastmond, D.A. and Grosovsky, A.G. (1997) The influence of cellular apoptotic capacity on N-nitrosodimethylamine-induced loss of heterozygosity mutations in human cells. Carcinogenesis 18:1701-1707.
56. Frantz, C.E., Smith, H., Eades, D.M., Grosovsky, A.J. and Eastmond, D.A. (1997) Bimolane: *in vitro* inhibitor of human topoisomerase II, Cancer Letters 120:135-140.
57. Rupa, D.S. and Eastmond, D.A. (1997) "Chromosomal alterations affecting the 1cen-1q12 region of buccal mucosal cells of betel quid chewers detected using multicolor fluorescence *in situ* hybridization", Carcinogenesis 18:2347-2351.
58. Schuler, M., Metzler, M. Parks, R. and Eastmond, D.A. (1998) Dose-response studies of the induction of hyperdiploidy and polyploidy by diethylstilbestrol and 17 $\beta$ - estradiol in cultured human lymphocytes using multicolor fluorescence *in situ* hybridization. Environmental and Molecular Mutagenesis 31:263-273.
59. Dobo, K.L., Eastmond, D.A., Grosovsky, A.J. (1998) Sequence specific mutations induced by N-nitrosodimethylamine at two marker loci in metabolically competent human lymphoblastoid cells, Carcinogenesis 19:755-764.
60. Smith, L.E., Parks, K., Hasegawa, L., Eastmond, D.A. and Grosovsky, A.J. (1998) Targeted breakage of paracentromeric heterochromatin induces chromosomal instability. Mutagenesis 13:435-443.

61. Schuler, M., Muehlbauer, P., Guzzie, P. and Eastmond, D.A. (1999) Noscapine hydrochloride disrupts the mitotic spindle in mammalian cells and induces aneuploidy as well as polyploidy in cultured human lymphocytes, *Mutagenesis* 14:51-56.
62. Schuler, M.J., Rupa, D.S. and Eastmond, D.A. (1999) Applications of Fluorescence *In Situ* Hybridization in Genetic Toxicology. In: *An Introduction to Fluorescent In Situ Hybridization*, (M. Andreeff and D. Pinkel, eds.), Wiley-Liss, Inc. New York., pp. 371-390.
63. Murg, M.N, Schuler, M.J. and Eastmond D.A. (1999) Evaluation of micronuclei and chromosomal breakage in the 1cen-q12 region by the butadiene metabolites epoxybutene and diepoxybutane in cultured human lymphocytes, *Mutagenesis* 14: 541-546.
64. Sasaki, J.C., Arey, J., Eastmond, D.A., Parks, K.K., Phousongphouang, P. and Grosovsky, A.G. (1999) Evidence for oxidative metabolism in the genotoxicity of the atmospheric reaction product 2-nitronaphthalene in human lymphoblastoid cell lines, *Mutation Research* 445: 113-125.
65. Kwok, E.S.C., Buchholz, B.A., Vogel, J.S., Turteltaub, K.W. and Eastmond, D.A. (1999) Dose-dependent binding of *ortho*-phenylphenol (OPP) to protein but not DNA in the urinary bladder of male F344 rats, *Toxicol. Appl. Pharmacol.* 159:18-24.
66. Marcon, F., A. Zijno, R. Crebelli, A. Carere, T. Veidebaum, K. Peltonen, M. Schuler, R. Parks and D.A. Eastmond (1999) Chromosome damage and aneuploidy detected by interphase multicolor FISH in benzene exposed shale oil workers, *Mutation Res.* 445:155-166.
67. Eastmond, D.A., Rupa, D.S., Schuler, M.J., Murg, M.N. and de la Peña, E. (1999) Multicolor FISH using tandem probes to detect chromosome alterations in humans cells and populations exposed to genotoxic agents, in: *Evaluación Mutagénica y Genotóxica*, E. de la Peña and I Burguete (Eds.), Dirección General de Enseñanza Superior e Investigación Científica, pp. 249-260.
68. Murg, M.N., Schuler, M. and Eastmond, D.A. (1999) Persistence of chromosomal alterations affecting the 1cen-1q12 region in a human lymphoblastoid cell line exposed to diepoxybutane and mitomycin C, *Mutation Res.* 446: 193-203.
69. Grosovsky, A. J., J. C. Sasaki, J. Arey, D. A. Eastmond, K. K. Parks, and R. Atkinson. 1999. Evaluation of the Potential Health Effects of the Atmospheric Reaction Products of Polycyclic Aromatic Hydrocarbons. Health Effects Institute Research Report Number 84, Cambridge, MA , pp. 1-27.
70. Eastmond, D.A. (2000) Benzene-induced genotoxicity: A different perspective, *J. Toxicol. Environ. Health, Part A*, 61:353-356.
71. Phousongphouang, P.T., A.J. Grosovsky, D.A. Eastmond, M. Covarrubias and J. Arey (2000) The genotoxicity of 3-nitrobenzantrone and the nitropyrene lactones in human lymphoblasts, *Mutation Research* 472:93-103.
72. Kirsch-Volders, M., Sofuni, T., Aardema, M., Albertini, S., Eastmond, D., Fenech, M., Ishidate, M. Jr, Lorge, E., Norppa, H., Surralles, J., von Der Hude, W., Wakata, A. (2000) Report from the in vitro micronucleus assay working group, *Environ. Mol. Mutagen.* 35:167-72.

73. Eastmond, D.A. and Balakrishnan, S. (2001) Genetic Toxicity of Pesticides, in: Handbook of Pesticide Toxicology, 2<sup>nd</sup> Ed. (R. Krieger, J. Doull, D. Ecobichon, E. Hodgson, L. Reiter, J. Ross, J. Seiber, and D. Gammon, eds.), Academic Press, San Diego pp. 747-767.
74. Cranor, C.F. and Eastmond, D.A. (2001) Scientific ignorance and reliable patterns of evidence in toxic tort causation: Is there a need for liability reform?. *Law and Contemporary Problems* 64: 5-48.
75. Eastmond, D.A., Schuler, M., Frantz, C., Chen, H.W., Parks, R., Wang, L., and Hasegawa, L. (2001) Characterization and Mechanisms of Chromosomal Alterations Induced by Benzene in Mice and Humans. Health Effects Institute Research Report 103, Cambridge, MA , pp. 1-75.
76. Balakrishnan, S., Uppala, P.T., Rupa, D.S, Hasegawa, L., and Eastmond, D.A. (2002) Detection of micronuclei, cell proliferation and hyperdiploidy in bladder epithelial cells of rats treated with *ortho*-phenylphenol, *Mutagenesis* 17:89-93.
77. Zhang, L., Eastmond, D.A., and Smith, M.T. (2002) The nature of chromosomal aberrations detected in humans exposed to benzene, *Critical Reviews in Toxicology*, 32, 1-42.
78. Wang, L. and Eastmond, D.A. (2002) Catalytic inhibitors of topoisomerase II are DNA damaging agents: Induction of chromosomal damage by merbarone and ICRF-187, *Environ. Mol. Mutagen.*, 39:348-356.
79. Qu, Q., Shore, R., Li, G., Jin, X., Chen, L.C., Cohen, B., Melikian, A.H., Eastmond, D.A., Rappaport, S.M., Yin, S., Li, H., Waidyanatha, S., Li, Y., Mu, R., Zhang, X., and Li, K. (2002) Hematological changes among Chinese workers with a broad range of benzene exposures, *American J. Industrial Medicine* 42:275-285.
80. Balakrishnan, S., Payawal, J., Schuler, M., Hasegawa, L. and Eastmond, D.A. (2002) Enhancing the in vitro and in vivo detection of aneuploidy by fluorescence in situ hybridization with the use of bromodeoxyuridine as a proliferation marker, *Mutation Research* 521:81-89.
81. Schuler, M., Muehlbauer, P., Guzzie, P., and Eastmond, D.A. (2003) Noscaphine hydrochloride induced numerical aberrations in cultured human lymphocytes: a multi-endpoint comparison, *Mutagenesis* 18:235-242.
82. Balakrishnan, S. and Eastmond, D.A. (2003) Evaluation of hyperdiploidy in the bladder epithelial cells of male rats treated with *ortho*-phenylphenol, *Mutation Research* 537:11-20.
83. Qu, G.M., Shore, R., Li, G., Jin, X., Chen, L.-C., Cohen, B., Melikian, A.A., Eastmond, D.A., Rappaport, S., Li, H., Doppalapudi, R., Waidyanatha, S., Yin, S., Yan, H., Meng, M., Winnik, Kwok, E.S.C., Li, Y., Mu, R., Xu, B., Zhang, X., and Li, K. (2003) Validation and Evaluation of Biomarkers in Workers Exposed to Benzene in China. Health Effects Institute Research Report 115, Cambridge, MA, pp.1-72; Appendix A, pp. 1-54; Appendix B, 1-17.
84. Kirsch-Volders M, Sofuni T, Aardema M, Albertini S, Eastmond D, Fenech M, Ishidate M, Kirchner S, Lorge E, Morita T, Norppa H, Surralles J, Vanhauwaert A, Wakata A. (2003) Report from the in vitro micronucleus assay working group, *Mutation Res.* 540:153-63.

85. Toraason M, Albertini R, Bayard S, Bigbee W, Blair A, Boffetta P, Bonassi S, Chanock S, Christiani D, Eastmond D, Hanash S, Henry C, Kadlubar F, Mirer F, Nebert D, Rapport S, Rest K, Rothman N, Ruder A, Savage R, Schulte P, Siemiatycki J, Shields P, Smith M, Tolbert P, Vermeulen R, Vineis P, Wacholder S, Ward E, Waters M, Weston A (2004) Applying New Biotechnologies to the Study of Occupational Cancer - A Workshop Summary, *Environmental Health Perspectives* 112:413-416
86. Olaharski, A.J. and Eastmond, D.A. (2004) "Elevated Levels of Tetraploid Cervical Cells in ASCUS HPV-Positive Pap Smears", *Cancer Cytopathology* 102:192-199.
87. Grant DJ, Hall IJ, Eastmond DA, Jones IM, Bell DA (2004) Bilirubin UDP-glucuronosyltransferase 1A1 (UGT1A1) gene promoter polymorphisms and HPRT, glycophorin A, and micronuclei mutant frequencies in human blood. *Mutation Res.* 560(1):1-10.
88. Kirsch-Volders M, Sofuni T, Aardema M, Albertini S, Eastmond D, Fenech M, Ishidate M, Kirchner S, Lorge E, Morita T, Norppa H, Surralles J, Vanhauwaert A, Wakata A. (2004) Corrigendum to "Report from the in vitro micronucleus assay working group" [*Mutation Res.* 540:153-63], *Mutation Research* 564:97-100.
89. Eastmond, D.A. (2005) "Sister Chromatid Exchanges", *Encyclopedia of Toxicology*, 2<sup>nd</sup> Edition, Wexler, P. (Ed.), Elsevier, Oxford, pp.19-20.
90. Eastmond, D.A. (2005) "Host-mediated Assay", *Encyclopedia of Toxicology*, 2<sup>nd</sup> Edition, Wexler, P. (Ed.), Elsevier, Oxford, pp.532-533.
91. Eastmond, D.A. (2005) "Aneuploidy", *Encyclopedia of Toxicology*, 2<sup>nd</sup> Edition, Wexler, P. (Ed.), Elsevier, Oxford, pp. 134-136.
92. Olaharski AJ, Mondrala ST, Eastmond DA (2005) Chromosomal malsegregation and micronucleus induction *in vitro* by the DNA topoisomerase II inhibitor fisetin, *Mutation Research* 582:79-86.
93. Uppala PT, Roy SK, Tousson A, Barnes S, Uppala GR, Eastmond DA (2005) Induction of cell proliferation, micronuclei and hyperdiploidy/polyploidy in the mammary cells of DDT- and DMBA-treated pubertal rats, *Environ. Molecular Mutagenesis* 46:43-52.
94. Eastmond, DA, Mondrala ST, Hasegawa L (2005) Topoisomerase II inhibition by myeloperoxidase-activated hydroquinone: A potential mechanism underlying the genotoxic and carcinogenic effects of benzene, *Chemico-Biological Interactions* 153-154:207-216.
95. Roy SK, Thilagar AT, Eastmond DA (2005) Chromosome breakage is primarily responsible for the micronuclei induced by 1,4-dioxane in the bone marrow and liver of young CD-1 mice. *Mutation Research* 586:28-37.
96. Cogliano VJ, Grosse Y, Baan RA, Straif K, Secretan MB, El Ghissassi F, Working Group for Volume 88 [DAE was a member of the Working Group.] (2005) Meeting report: Summary of IARC monographs on formaldehyde, 2-butoxyethanol, and 1-*tert*-butoxy-2-propanol, *Environ Health Perspectives* 113:1205-1208.

97. Olaharski AJ, Sotelo R, Solorza-Luna G, Gonsebatt ME, Guzman P, Mohar A, Eastmond DA (2006) Tetraploidy and chromosomal instability are early events during cervical carcinogenesis. *Carcinogenesis* 27:337-343.
98. Balakrishnan, S. and Eastmond, D.A. (2006) Micronuclei and cell proliferation as early biological markers of ortho-phenylphenol-induced changes in the bladder of male F344 rats. *Food and Chemical Toxicology* 44:1340-1347.
99. Kim, A.S., Eastmond, D.A., Preston, R.J. (2006) Childhood acute lymphocytic leukemia and perspectives on risk assessment of early-life stage exposures. *Mutation Research – Reviews* 613:138-160.
100. Ramirez T, Eastmond DA, Herrera LA (2007) Non-disjunction events induced by albendazole in human cells. *Mutation Research - Genetic Toxicology and Environmental Mutagenesis* 626:191-5.
101. Wang L, Roy SK, Eastmond DA (2007) Differential cell cycle-specificity for chromosomal damage induced by merbarone and etoposide in V79 cells. *Mutation Research – Fundamental and Molecular Mechanisms of Mutagenesis* 616:70-82.
102. Manibusan M, Odin M, Eastmond DA (2007) Postulated carbon tetrachloride mode of action: a review, *Journal of Environmental Science and Health Part C*, 25:185-209.
103. Eastmond DA, MacGregor JT, Slesinski RS (2008) Trivalent chromium: Assessing the genotoxic risk of an essential trace element and widely-used human and animal nutritional supplement, *Critical Reviews in Toxicology* 38:173-190.
104. Eastmond DA (2008) Evaluating genotoxicity data to identify a mode of action and its application in estimating cancer risk at low doses: A case study involving carbon tetrachloride, *Environmental Mol Mutagen* 49:132-41.
105. Keshava N, Eastmond DA (2008) Use and application of mode of action in cancer risk assessment, *Environmental Mol Mutagen* 49:97-9.
106. Zhang L, Steinmaus C, Eastmond DA, Xin XK, Smith MT (2009) Formaldehyde exposure and leukemia: A new meta-analysis and potential mechanisms, *Mutation Research – Reviews* 681:150-168.
107. Guyton KZ, Kyle AD, Aubrecht J, Cogliano VJ, Eastmond DA, Jackson M, Keshava N, Sandy MS, Sonawane B, Zhang L, Waters MD, Smith MT (2009) Improving Prediction of Chemical Carcinogenicity by Considering Multiple Mechanisms and Applying Toxicogenomic Approaches, *Mutation Research – Reviews* 681:230-240.
108. Eastmond DA, Hartwig, A, Anderson D, Anwar W, Cimino MC, Dobrev I, Douglas GR, Nohmi T, Phillips DH, Vickers C (2009) Mutagenicity testing for chemical risk assessment: Update of the WHO/IPCS harmonized scheme, *Mutagenesis* 24:341-349.
109. Pfuhler S, Kirkland D, Kasper P, Hayashi M, Vanparys P, Carmichael P, Dertinger S, Eastmond D, Elhajouji A, Krul C, Rothfuss A, Schoening G, Smith A, Speit G, Thomas C, van Benthem, J, Corvi R. (2009) Reduction of use of animals in regulatory genotoxicity testing: Identification and implementation opportunities – Report from an ECVAM workshop, *Mutation Research, Genetic Toxicology and Environmental Mutagenesis* 680:31-42.

110. Schoenung J.S., Ogunseitan O., Eastmond D.A. (2009) "Research and Education in Green Materials: A Multi-disciplinary Program to Bridge the Gaps," Proceedings of the IEEE International Symposium on Sustainable Systems and Technology (ISSST), Tempe AZ, May 18-20, 2009. doi:10.1109/ISSST.2009.5156760.
111. Eastmond, D.A. and Balakrishnan, S. (2010) Genotoxicity of Pesticides, in: Hayes' Handbook of Pesticide Toxicology, 3<sup>rd</sup> Ed. (R. Krieger, ed.), Academic Press, San Diego, pp. 357-380.
112. Mondrala S. and Eastmond D.A. (2010) Topoisomerase II inhibition by the bioactivated benzene metabolite hydroquinone involves multiple mechanisms, *Chemico-Biological Interactions* 184:259-268.
113. Fenech M., Kirsch-Volders M., Natarajan A.T., Surralles J., Crott J.W., Parry J., Norppa H., Eastmond D.A., Tucker J.D., Thomas P. (2011) Molecular mechanisms of micronucleus, nucleoplasmic bridge, and nuclear bud formation in mammalian and human cells, *Mutagenesis* 26:125-132.
114. Galloway S, Lorge E, Aardema MJ, Eastmond D, Fellows M, Heflich R, Kirkland D, Levy DD, Lynch AM, Marzin D, Morita T, Schuler M, Speit G. (2011) Workshop summary: Top concentration for in vitro mammalian cell genotoxicity assays; and report from working group on toxicity measures and top concentration for in vitro cytogenetics assays (chromosome aberrations and micronucleus). *Mutation Res.* 723:77-83.
115. Roy SK, Eastmond DA (2011) Bimolane induces multiple types of chromosomal aberrations in human lymphocytes *in vitro*. *Mutation Res.* 726:181-187.
116. Eastmond DA (2012) Factors influencing mutagenic mode of action determinations of regulatory and advisory agencies. *Mutation Res.* – Reviews 751:49-63.
117. Eastmond, DA (2012) "Lymphohematopoietic Cancers Induced by Chemicals and Other Agents: Overview and Implications for Risk Assessment", Environmental Protection Agency, EPA/600/R-10/095F, 80 pp.
118. Vuong M, Hasegawa LH, Eastmond DA (2013) A comparative study of the cytotoxic and genotoxic effects of ICRF-154 and bimolane, two catalytic inhibitors of topoisomerase II. *Mutation Res.* – Genetic Toxicology and Environmental Mutagenesis 750:63-71.
119. Spassova MA, Miller D, Eastmond DA, Nikolova, NS, Vulimiri SV, Caldwell J, Chen C, White PD (2013) Dose-response analysis of bromate-induced DNA damage and mutagenicity is consistent with low-dose linear, non-threshold processes, *Environ. Molecular Mutagenesis.* 54:19-35.
120. Eastmond DA, Vulimiri SV, French JE, Sonawane B (2013) The use of genetically modified mice in cancer risk assessment: Challenges and limitations, *Crit. Rev. Toxicology* 43:611-631.
121. Bhat VS, Hester SD, Nesnow S, Eastmond DA (2013) Concordance of transcriptional and apical benchmark dose levels for conazole-induced liver effects in mice, *Toxicological Sci.* 136:205-215.



122. Eastmond DA (2014) "Aneuploidy", in Encyclopedia of Toxicology, 3<sup>rd</sup> Edition, Vol. 1, Wexler, P. (Ed.), Elsevier, Academic Press, pp. 238–239.
123. Eastmond DA (2014) "Host-mediated Assay", in Encyclopedia of Toxicology, 3<sup>rd</sup> Edition, Vol. 2, Wexler, P. (Ed.), Elsevier, Academic Press, pp. 949-950.
124. Eastmond DA (2014) "Sister Chromatid Exchanges", in Encyclopedia of Toxicology, 3<sup>rd</sup> Edition, Vol. 4, Wexler, P. (Ed.), Elsevier, Academic Press, pp. 276-277.
125. Gollapudi P, Hasegawa LS, Eastmond DA (2014) A comparative study of the aneugenic and polyploidy-inducing effects of fisetin and two model Aurora kinase inhibitors, Mutation Res. – Genetic Toxicology and Environmental Mutagenesis 767: 37-43.
126. Eastmond DA, Keshava N, Sonawane B (2014) "Lymphohematopoietic Cancers Induced by Chemicals and their Implications for Risk Evaluation: An Overview, Mutation Res. – Reviews, (accepted 4-3-14).