CURRICULUM VITAE

Name: Ercole Luigi Cavalieri

Social Security Number: Available upon request

Campus Address: Eppley Institute for Research in Cancer

Home Address: 22635 Wilson Avenue, Waterloo, Nebraska 68069

Place and Date of Birth: Milan, Italy
February 10, 1937

Languages: Fluent Italian, French and English; and Spanish (reading)

Education: The University of Milan, Milan, Italy, D.Sc. in Chemistry, 1956-1962

Academic Appointments:

Director, Center for Environmental Health and Toxicology, University of Nebraska, 1997 - present

Professor, Department of Biochemistry and Molecular Biology, University of Nebraska Medical Center, 1997 - 2008

Chairman, Environmental Toxicology and Carcinogenesis Graduate Program, University of Nebraska Medical Center, 1990 - 1997

Professor, Department of Chemistry, University of Nebraska-Lincoln, Lincoln, Nebraska, 1992 - present

Professor, Eppley Institute for Research in Cancer, University of Nebraska Medical Center, 1981 - present

Professor, Department of Pharmaceutical Sciences, University of Nebraska Medical Center, 1981-2002

Academic tenure, 1978

Associate Professor, Eppley Institute for Research in Cancer and Department of Biochemistry, University of Nebraska Medical Center, 1974 - 1981

Assistant Professor, Eppley Institute for Research in Cancer and Department of Biochemistry, University of Nebraska Medical Center, Omaha, Nebraska, 1971 - 1974

Postdoctoral research associate with Nobel Prize winner Professor Melvin Calvin, Chemical Biodynamics Laboratory, Lawrence Berkeley Laboratory, University of California, Berkeley, California, July 1968 - December 1970

Assistant Professor, Department of Chemistry, University of Montreal, Canada, 1967 - 1968

Lecturer and Research Associate, Department of Chemistry, University of Montreal, Canada, 1965 - 1967

Research Chemist at the Recordati Pharmaceutical Firm, Milan, Italy, March 1964 - April 1965

Postdoctoral fellow with Professor O. Jeger, Polytechnic of Zurich (E.T.H.), Switzerland, 1963

Research Chemist at the Maggioni Pharmaceutical Firm, Milan, Italy, March 1962 - December 1962

Grant/Contract Support:

Co-Investigator on Ovarian Cancer Research Program grant "Estrogen-DNA Adducts as Novel Biomarkers for Ovarian Cancer Risk and for Use in Prevention" from the Department of Defense from March 2010 – February 2012.

Principal Investigator on Progress for Patients Awards Program grant "Estrogen-DNA Adducts in Breast, Urine & Serum as Biomarkers of Breast Cancer Risk" from NCI from August 2006 – July 2008.

Principal Investigator on the Breast Cancer Center of Excellence grant "Estrogen-Induced Depurination of DNA: A Novel Target for Breast Cancer Prevention" from the US Army from April 2003 – April 2007.

Principal Investigator on the grant "Role of Estrogen Metabolism in the Initiation of Prostate Cancer: Biomarkers of Susceptibility and Early Detection" from the US Army from May 2002 – April 2005.

Principal Investigator on the program project grant "Mechanisms of 7,12-Dimethyl-benzanthracene Carcinogenesis" from the National Cancer Institute from December 1988 - November 1992; renamed "Mechanisms of Carcinogenesis of Aromatic Hydrocarbons" from February 1993 - May 1996; renamed "Molecular Origin of Cancer: From PAH to Estrogen Quinones" from May 1996 - April 2001; renamed "Molecular Origin of Cancer: Catechol estrogen-3,4-quinones" from July, 2001-June, 2005.

Principal Investigator on the grant "Mechanisms of Carcinogenesis of Dibenzo[*a,l*]pyrene" from the National Cancer Institute from September 1991 - August 1995; renamed "Dibenzo[*a,l*]pyrene: Model of Tumor Initiation & Promotion" from January 1996 - December

1998; renamed “Molecular Origin of Cancer: Catechols ⏐ Semiquinones ⏐Quinones ” from January 1999 - December 2003.

Co-Investigator on the grant “Initiation of Human Breast Cancer: Enzymes Involved and Early Detection” (P.I., E. Rogan) from the Cancer Research Foundation of America from July 2000 – June 2002.

Co-Investigator on the grant “Aromatase Overexpression and Breast Cancer Development” (P.I., W. Yue, University of Virginia) from the DoD Breast Cancer Research Program from May 2001 - April 2004.

Co-Investigator on the grant “Agrochemicals and Cancer: A Framework and P450 Expression” (P.I., E. Rogan) from the University of Nebraska Medical Center/University of Nebraska – Lincoln from March 2001 to June 2002.

Principal Investigator on the grant “DNA Adducts and Apurinic Sites in Estrogen-Initiated Cancer”, supplement to program project grant from the National Cancer Institute from July 1998 - June 2000.

Co-Investigator on the grant "Initiation of Breast Cancer: Activated Catechol Estrogens" (P.I., E. Rogan) from the National Cancer Institute from September 1995 - September 1998.

Co-Investigator on the grant "Initiation of Breast Cancer: Activated Catechol Estrogens" (P.I., E. Rogan) from the U.S. Army from May 6, 1996 - May 5, 1999.

Principal Investigator on the grant "Diethylstilbestrol: A Model for Hormonal Carcinogenesis" awarded by the Nebraska Department of Health from July 1995 - June 1996

Co-Investigator on the grant "Binding of Aromatic Hydrocarbons to Nucleic Acids" (P.I., E. Rogan) from the National Cancer Institute, July 1979 - February 1992; renamed "Use of DNA Adducts in the Study of PAH Carcinogenesis" from March 1992 - February 1996

Principal Investigator on the grant "Radical Cations of PAH in Carcinogenesis and Metabolism" from the National Cancer Institute from September 1988 - August 1991; renamed "Mechanisms of Tumor Initiation by BP and Derivatives" from September 1991 - August 1995

Principal Investigator on the Supplemental Grant "Catechol Estrogens - Carcinogenic Forms of Estrogens" from the National Cancer Institute from October 1992 - September 1993

Principal Investigator on the ACS Special Institutional Grant "The Catechol Estrogen Pathway: A Possible Source of Endogenous Carcinogens" from May 1992 - April 1993

Principal Investigator on the grant "Dibenzo[*a,l*]pyrene: Smoking and Environmental Cancer Risk" (mice) awarded by the Nebraska Department of Health from July 1990 - June 1992

Principal Investigator on the American Cancer Society Special Institutional Grant "Formation of 8-Methylguanine in Alkylation of DNA with 1,2-Dimethylhydrazine Mediated by

Cytochrome P-450 In Vitro, in Cultured Mouse Colon Epithelial Cells, and in the Colon and Lung of Mice Treated In Vivo" from October 1990 - September 1991

Principal Investigator on the UNMC seed grant "Dibenzo[*a,l*]pyrene: Smoking and Environmental Cancer Risk" (rats) from July 1990 - June 1991

Co-Investigator on the grant "Metabolic Formation of 3-Methylcholanthrene-DNA Adducts" (P.I., E. Rogan) from the Nebraska Department of Health, July 1988 - June 1989
Principal Investigator on the grant "Renal and Mammary Carcinogenicity of Catechol Estrogens" from the Wendy Will Case Cancer Fund, June 1987 - May 1988

Principal Investigator on the seed grant "The ∀-Lactam 1-t-Butyl-3-Phenylaziridinone: A Potential Model for Human Malignant Melanomas" from the Fraternal Order of Eagles, November 1984 - October 1985

Co-Investigator on the grant "Persistence of Carcinogen Binding to DNA" (P.I., E. Rogan) from the Department of Health, State of Nebraska, July 1983 - June 1984

Principal Investigator on the project "Steroid Hormones in Carcinogenesis" from the Lincoln Family Foundation from December 1983 - 1988

Principal Investigator on the grant "Mechanisms of Mammary Carcinogenesis by Hydrocarbons" from the National Cancer Institute from May 1983 - April 1986

Principal Investigator on the seed grant "Carcinogenicity of 8-Fluoro- and 10-Fluoro-3-Methylcholanthrenes in the Rat Mammary Gland" from the University of Nebraska Medical Center from July 1981 - June 1982

Principal Investigator on the grant "Cyclopental[*cd*]pyrene Series: Mutagenesis and Carcinogenesis" from the National Institute of Environmental Health Sciences from April 1979 - March 1985

Principal Investigator on the contract "Studies on Environmental Carcinogenesis and Bioassay" (Skin Studies) November 1979 - April 1981

Principal Investigator on the grant "Quantitative Study of Carcinogenesis by Hydrocarbons" awarded by the National Cancer Institute from June 1973 - June 1976

Project Leader for Section on Polycyclic Aromatic Hydrocarbons, Public Health Service contract "Environmental Carcinogenesis" from January 1972 - November 1979

Patents:

Cavalieri, E., and Rogan, E. (#5, 849, 906, December 15, 1998) Antigenic conjugates of polycyclic aromatic hydrocarbons to nucleosides.

Cavalieri, E., Casale, G., Rogan, E., Stack, D. (#5, 840, 889, November 24, 1998) Synthesis of estrogen- purine base and estrogen-mercapturate adducts and development of fluorescent probes and monoclonal antibodies to assay those adducts.

Cavalieri, E., Casale, G., Rogan, E., Stack, D. (#5, 952,183, September 14, 1999) Synthesis of estrogen-mercapturate adducts and development of fluorescent probes and monoclonal antibodies to assay those adducts.

Three patents are pending:

- Cavalieri, E. and Rogan, E. A unifying mechanism and methods to prevent cancer and neurodegenerative diseases.
- Cavalieri, et al. Biomarkers of cancer risk and their use in cancer detection and prevention

Honors and Awards:

Damon Runyon Memorial Fund Fellowship, 1968 - 1970

Cancer Research Coordinating Committee Fellowship, University of California, Berkeley, California, June 1970 - December 1970

Graduate Faculty Fellow, University of Nebraska, 1973 - present

Member of the National Cancer Institute's Carcinogenesis Scientific Advisory Committee, 1977

UNMC Mid-America State Universities Association (MASUA) Honor Lecturer, 1985 – 1986

Member of the Program Committee of the International Symposium on Polynuclear Aromatic Hydrocarbons, 1988-1993

Member of the Editorial Committee of the International Symposium on Polynuclear Aromatic Hydrocarbons, 1988-1993

Member of a panel appointed by U.S. EPA to assess the environmental carcinogenic risk of 150 polycyclic aromatic hydrocarbons, January 1990

Member of a peer review appointed by U.S. EPA to evaluate the OPPT/LogiChem Cancer Expert System in Structure-Activity Relationships, July 1992.

Co-Chairman and Organizer of the Fourteenth International Symposium on Polycyclic Aromatic Compounds, Osage Beach, MO, September 8 - 11, 1993.

Editor of the Proceedings of the Fourteenth International Symposium on Polycyclic Aromatic Compounds in: Polycyclic Aromatic Compounds (E. Cavalieri and E. Rogan, eds.) Vol. 5-7, Gordon and Breach Science Publishers.

Member, Board of Directors, International Society for Polycyclic Aromatic Compounds, 1993 – 1995.

Member, Program Committee, International Society for Polycyclic Aromatic Compounds, 1993 – 1998.

Outstanding Research and Creative Activity Award, University of Nebraska, 1994.

Member, grant review panel of the Tobacco Related Disease Research Program, University of California-San Francisco, April 21-22, 1994.

Member, Cancer Cube panel, National Cancer Institute focus group on estrogen carcinogenesis, Washington, D.C., 1996-

Member, contract review panel of "Synthesis of selected chemical carcinogens and chemopreventive agents", National Cancer Institute, Bethesda, MD, October 25, 1996.

Participant in the NCI workshop "Do estrogenic compounds induce genotoxic events leading to cancer?", Bethesda, MD, December 8-9, 1996.

Member, review panel, Scientific Experts for the European Commission on Hormones for Meat Production, World Trade Organization, Geneva, Switzerland, February 16-18, 1997.

Member, review committee, Comprehensive Cancer Center of Wake Forest University, Winston-Salem, NC, May 28-30, 1997.

Member of the Steering Committee, Cancer Cube, National Cancer Institute focus group on estrogen Carcinogenesis, Washington, D.C., 1997 -

Member of the organizing committee of the International Symposium "Estrogens as Endogenous Carcinogens in the Breast and Prostate", Westfields International Conference Center, Chantilly, VA, March 16-17, 1998.

Co-editor of the Journal of the National Cancer Institute monograph "Estrogens as Endogenous Carcinogens in the Breast and Prostate", 27, 2000, (E. Cavalieri and E. Rogan, eds.)from the International Symposium held March 16-17, 1998, Westfields International Conference Center, Chantilly, VA, 2000.

Member of the Editorial Board "Journal of Women's Cancer" 1999 -

Member of the Board of Scientific and Policy Advisors of the American Council on Science and Health, 2000 –

Symposium Director, PS^3 2003 Perchlorate State-of-the-Science Symposium, Omaha, Nebraska, September 29-October 1, 2003.

Member of the Programmatic Review Committee of Breast Cancer Research Grants, Department of Defense, 2004 – 2005.

UNMC Distinguished Scientist Award, 2007

Memberships in Professional Societies:

American Chemical Society, 1968-
American Association for Cancer Research, 1973-
The New York Academy of Sciences, 1983-

Committee Assignments:

Departmental

Member of the Graduate Committee, Department of Biomedicinal Chemistry, 1979 - 1985

Member of the Graduate Committee, Eppley Institute, 1983 - 1992

Member of the Animal Care Committee, Eppley Institute, 1983 - 1995

Member of the Pharmaceutical Sciences Graduate Committee, 1986 - 1989

Member of the Committee to develop curricula for the Department of Pharmaceutical Sciences, 1986 - 1987

Member of the Search Committee for a new faculty member, Department of Pharmaceutical Sciences, 1986 - 1987

Member of the Eppley Promotion and Tenure Committee, 1988 - 1997

Member of the Search Committee for the Director of the Eppley Institute, 1988 - 1989

Member of the Eppley Seminar Committee, 1990 -

Member of the Search Committee for new faculty members in carcinogenesis, Eppley Institute, 1990 - 1991

Member of the Director's Advisory Committee, Eppley Institute, 1992 – 1995

UNMC

Member of the Nuclear Magnetic Resonance Committee, University of Nebraska Medical Center, 1984 -

Member of the Library Committee, University of Nebraska Medical Center, 1986 - 1989
Member of the Professional Conduct Committee, University of Nebraska Medical Center, 1987 - 1990; Chairman, 1988 - 1990

Member of the Graduate Student Recruitment Committee, University of Nebraska Medical Center, 1991 - 1993

Member of the Search Committee for the Director of the Eppley Institute and the UNMC/Eppley Cancer Center, 1988 - 1989 and 1997 - 1998

University

Executive Committee of the Environmental Toxicology and Carcinogenesis Graduate Program, University of Nebraska, Chairman, 1990 –

Chairman of the Search Committee for a new faculty member in environmental toxicology, Water Center (UNL)-Eppley Institute (UNMC), 1992

Member of the Search Committee for the mass spectrometry faculty member at the University of Nebraska-Lincoln, 1994

Teaching:

Past Instructor in "Spectroscopic Methods of Analysis", Department of Pharmaceutical Sciences.

Present Instructor in Chemical Carcinogenesis (PHSC 875, 8 hours), Advanced Toxicology (PHSC 950, 6 hours), Advanced Medicinal Chemistry (PHSC 830, 6 hours) and Molecular Pharmacology (PHAR 905, 2 hours).

Thesis advisor, M.S. for Mr. Andrew Alpert, Biochemistry, 1974 - 1976

Thesis advisor, M.S. for Ms. Aleta Munhall, Department of Biomedicinal Chemistry, 1980 - 1982

Thesis advisor, Ph.D. for Mr. Paolo Cremonesi, Department of Pharmaceutical Sciences 1983 – 1987

Ph.D. Supervisory Committee for Ms. Victoria Roche, Department of Biomedicinal Chemistry, 1977 - 1981

Ph.D. Supervisory Committee for Mr. Mark Swanson, Department of Biomedicinal Chemistry, 1980 - 1983

Ph.D. Supervisory Committee for Mr. Mohammad Hassan, Department of Biomedicinal Chemistry, 1981 - 1984

M.S. and Ph.D. Supervisory Committee for Mr. Kevin Church, Department of Pharmaceutical Sciences, 1983 - 1988

M.S. Supervisory Committee for Mr. Stephen Tibbels, Department of Pharmaceutical Sciences, 1986 - 1987

Ph.D. Supervisory Committee for Mr. Mohd Shara, Department of Pharmaceutical Sciences, 1986 - 1990

Ph.D. Supervisory Committee for Mr. Lance Encell, Department of Pharmaceutical Sciences, 1990 - 1995

Ph.D. Supervisory Committee for Mr. Gangning Liang, Department of Pharmaceutical Sciences, 1991 - 1995

M.S. Supervisory Committee for Mr. Mark Looyenga, Department of Chemistry, UNL,

M.D./Ph.D. Supervisory Committee for Ms. Kimberly Chapman, Department of Biochemistry, UNMC, 1997 – 2000.

Thesis Advisor, Ph.D., for Mr. Aaron Hanson, Department of Pharmaceutical Sciences, 1993 - 1998

Thesis Advisor, M.S., for Mr. Kai Cao, Department of Chemistry, UNL, 1994 – 1997

Thesis Advisor, M.S., for Ms. Lisa Crandall, Department of Pharmaceutical Sciences, 1998 – 2001

Ph.D. Supervisory Committee for Mr. Mohamed Ali, Environmental Toxicology Graduate Program, 2002 – 2008

Ph.D. Supervisory Committee for Mr. Fang Lu, Environmental Toxicology Graduate Program, 2005 - 2007

Ph.D. Supervisory Committee for Ms. Li Yang, Environmental Toxicology Graduate Program, 2006 – 2010

Personnel Supervised:

Ms. Sharon Cherek, Program Coordinator, Center for Environmental Toxicology, 2000 –

Dr. Muhammad Zahid, Postdoctoral Research Associate in chemistry, 2002 –

Previous Personnel Supervised Includes:

Dr. Robert Auerbach, Ph.D. in chemistry. He was a postdoctoral research associate at Eppley (1972-1973). Dr. Auerbach is now a Group Manager at J.P. Lord, Mellon Institute, Pittsburgh, PA.

Dr. Eleanor Rogan, Ph.D. in biology. She was a postdoctoral research associate at Eppley (1973-1976). Dr. Rogan is now a Professor at Eppley and Department of Pharmaceutical Sciences, University of Nebraska Medical Center, Omaha, NE.

Dr. Robert Roth, Ph.D. in chemistry. He was a postdoctoral research associate at Eppley (1973-1976). Dr. Roth was an Assistant Professor at Eppley (1976-1978) and is now Project Leader, Chemsyn Sciences Laboratory, Lenexa, KS.

Dr. Andrew Alpert, Ph.D. in biochemistry. He received an M.S. from the Department of Biochemistry, University of Nebraska Medical Center (1974-1976) and a Ph.D. in biochemistry from Purdue University, Lafayette, Indiana. Dr. Alpert is now President of Poly LC, Columbia, MD.

Dr. Kent Saugier, Ph.D. in chemistry. He came to Eppley with a B.S. in chemistry. He was trained for two years (1976-1978) and received a Ph.D. in chemistry from the University of California at Berkeley, CA in 1983.

Mr. Joseph Saugier, B.S. in chemistry. He was trained at Eppley Institute for three years (1976-1979). He is now a group leader in radiochemicals at Chemsyn, Lenexa, KS.

Dr. Ramadas Balasubramanian, Ph.D. in chemistry. He was a postdoctoral research associate at Eppley Institute (1980-1982). He is now Clinical Trial Specialist at Burroughs-Wellcome, Research Triangle Park, NC.

Dr. Alaeddin Hakam, Ph.D. in biochemistry. He was a postdoctoral research associate for two years (1980-1982) here at Eppley. He is now associate director at the Octamer Research Foundation, Tiburon, CA.

Dr. Charles Warner, Visiting Associate Professor from the Department of Chemistry at Hastings College (Nebraska) (1983-1984). He is now a research scientist in the Clinical Research Center at M.I.T., Boston, MA.

Dr. Allan Wong, Postdoctoral research associate in biochemistry (1983-1985).

Dr. Nathan Yumibe, Postdoctoral research associate in chemistry (1985-1986). He is now a research scientist at the Bioanalytical Department, Merck Co., West Point, PA.

Dr. Paolo Cremonesi, Ph.D. in Pharmaceutical Sciences and D.Sc. in Chemistry. He received his Ph.D. at UNMC (1983-1987) and was a postdoctoral research associate at Eppley Institute (1987-1989). He is now a leading expert in restoration of paintings. He is independently employed as a lecturer and consultant in Italy.

Dr. Ohara Augusto, Visiting Associate Professor of Biochemistry from the Department of Chemistry, University of Sao Paulo, Sao Paulo, Brazil (Summer 1989).

Dr. U. Mallikarjuna Rao, Postdoctoral Research Associate in biochemistry (1989 - 1990). He is postdoctoral research associate in the Department of Chemistry, Louisiana State University.

Dr. Fenglan Gao, Postdoctoral Research Associate in chemistry (1989 - 1990)

Dr. Rosa Todorovic, Postdoctoral Research Associate in biochemistry (1989 - 1991)

Dr. B. Chandra Sekhar, Postdoctoral Research Associate in chemistry (1990 - 1991). He is Principal Scientist at Dr. Reddy's Research Foundation, Hyderabad, India.

Dr. Indra Dwivedy, Postdoctoral Research Associate in chemistry (1990 - 1992). She was Research Scientist at the Center for Diseases Research Institute, Lucknow, India and is now a member of the Patent Office at the Council of Scientific and Industrial Research, New Delhi, India.

Dr. N.V.S. RamaKrishna, Postdoctoral Research Associate in chemistry (1989 – 1993). He was Principal Research Scientist and Deputy Head, National Product Chemistry at Hoechst Marion Roussel, Bombay, India (1993 – 1996). He is now Vice President, Discovery Chemistry, Biopharmaceutics, at Suven Pharmaceuticals, Hyderebad, India.

Ms. Padmavathi Sri Yedidi, M.Sc.; Research Technologist (1990 – 1993)

Dr. Patrick Mulder, Postdoctoral Research Associate in chemistry (1993 – 1995). He is now Senior Scientist at Rikilt Corporation, Wageningen, The Netherlands.

Dr. T. V. Anklekar, Postdoctoral Research Associate in chemistry (1993 – 1995)

Dr. Liang Chen, Postdoctoral Research Associate in chemistry (1993 - 1996). He is now a Senior Scientist at Bionike Inc., San Francisco, CA

Dr. Shyi-Tai Jan, Postdoctoral Research Associate in chemistry (1993 – 1996)

Dr. Douglas Stack, Postdoctoral Research Associate in chemistry (1993 – 1996); Research Associate (1996 – 1997). He is presently Assistant Professor, Department of Chemistry, University of Nebraska at Omaha (1997 - present)

Mr. Kai (Kevin) Cao (1994 - 1997) He is currently Senior Staff Scientist, Stine-Haskell Research Center, Dupont Life Science Enterprise, Newark, DE

Dr. Yan Wang, Postdoctoral Research Associate in chemistry (1997 - 1998)

Dr. Narayanan Balu, Postdoctoral Research Associate in chemistry (1997 - 1998)

Dr. Prabhakar D. Devanesan, Postdoctoral Research Associate in biochemistry (1985 - 1991), Instructor (1991 – 1999). He was Senior Scientist at Protarga Inc., Exton, PA (1999 - 2003)

Dr. Dhrubajyoti Chakravarti, Postdoctoral Research Associate in molecular biology (1993 - 1996), Research Associate (1996 - 2000). He is now Research Assistant Professor at the Eppley Cancer Institute, University of Nebraska Medical Center, Omaha, NE (2000 - present)

Ms. Weiling Liang, Research Technician (1996 - 2000). She is now Associate Chemist, Medicinal Chemistry at Essential Therapeutics, Mountain View, CA (2000 - present)

Dr. K.C. Sunil, Postdoctoral Research Fellow (1999 - 2000)

Dr. Rosa Todorovic, Postdoctoral Research Associate in biochemistry (1992 - 1996), Research Associate (1996 - 2000). She was Senior Scientist at Protarga, Inc., Exton, PA (2000 - 2003)

Dr. Kai-Ming Li, Postdoctoral Research Associate in chemistry (1992 - 2000). He is now Senior Quality Control Chemist at Ash Stevens, Inc., Detroit, MI (2000 - present)

Dr. Jian-Sen Li, Postdoctoral Research Fellow in chemistry (1999 - 2000)

Dr. Ekta Kohli, Postdoctoral Research Associate in biochemistry (2002 - 2003)

Dr. Sandra Gunselman, Postdoctoral Research Associate in biochemistry (2002 - 2004)

Ms. Sara Schoomaker, Research Technologist (2002 - 2004)

Ms. Carol Kolar, Researcher (2003 - 2004)

Dr. Yan Zhang, Postdoctoral Research Associate in biochemistry (2003 - 2005)

Ms. Sheila Higginbotham, Research Technologist (1983 –2009)

Dr. Muhammad Saeed, Postdoctoral Research Associate in chemistry (2001 – 2009)

Dr. Nilesh Gaikwad, Postdoctoral Research Associate in Chemistry (2005 – 2009)

Description of Research Activities:

Molecular mechanisms of tumor initiation by polycyclic aromatic hydrocarbons (PAH) and estrogens. Origin of human cancer at the molecular level.

This research includes: (a) synthesis, chemical properties and reactions of mechanistic interest of polycyclic aromatic hydrocarbons radical cations; (b) in vitro and in vivo binding studies of PAH and estrogens to DNA, determination and quantitation of the structure of the adducts; (c) correlation of *ras*-oncogene mutations and formation of DNA depurinating adducts; (d) chemical mechanisms of cytochrome P-450 catalysis; (e) comparative tumorigenicity studies in the two target organs, mouse skin, and rat mammary gland; (f) mechanism of tumor initiation by catechol quinones of natural estrogens and synthetic estrogens, of benzene and of dopamine; (g) analysis of biomarkers for the etiology and early detection of breast, prostate and other human cancers; (h) chemoprevention of animal and human cancer.

Bibliography:

a. Publications in scientific journals

1. Piozzi, A. and Cavalieri, E. Sintesi di chinolil terz. alchilchetoni e relativi carbinoli secondari. Gazz. Chim., Ital. 92:454-467, 1962.

2. Carissimi, M., Cavalieri, E., Grumelli, E., Milla, E. and Ravenna, F. Derivati dell'idrazide dell'acido 2-fenilciclopropancarbonico ad azione inibitrice sulle monoaminoossidasi. Farmaco 10:809-821, 1964.

3. Bozzato, G., Cavalieri, E., Schaffner, K. and Jeger, O. Der Photochemische Abbau von-O-Acetyljervin. Chimia 18:405, 1964.

4. Fliszar, S., Gravel, D. and Cavalieri, E. Étude quantitative des réactions d'ozonolyse. I. Ozonation du tétraphényléthylène. Can. J. Chem. 44:67-73, 1966.

5. Fliszar, S., Gravel, D. and Cavalieri, E. Étude quantitative des réactions d'ozonolyse. II. Ozonation du trans-stilbène. Can. J. Chem. 44:1013-1019, 1966.

6. Cavalieri, E. and Gravel, D. The photolysis of 4,6,6-trimethyl-5,6-dihydro-2-(1H)-pyridone. A novel photochemical cleavage reaction. Tetrahedron Lett. 40:3973-3976, 1967.

7. Cavalieri, E. and Horoupian, S. Photochemical behavior of some α, β-unsaturated lactams. Dependence of reaction path on multiplicity. Can. J. Chem. 47:2781-2786, 1969.

8. Cavalieri, E. and Gravel, D. The photolysis of 4,6,6-trimethyl-5,6-dihydro-2-(1H)-pyridone. Intermediates and mechanism. Can. J. Chem. 48:2727-2734, 1970.

9. Baggiolini, E., Bercheid, H.G., Bozzato, G., Cavalieri, E., Schaffner, K. and Jeger, O. Die Photofragmentierung von O-Acetyljervin. Helv. Chim. Acta 54:429-449, 1971.

10. Cavalieri, E. and Calvin, M. Molecular characteristics of some carcinogenic hydrocarbons. Proc. Nat. Acad. Sci. (USA) 68:1251-1253, 1971.

11. Cavalieri, E. and Calvin, M. Photochemical coupling of benzo[*a*]pyrene with 1-methylcytosine; photo-enhancement of carcinogenicity. Photochem. Photobiol. 14:641-653, 1971.

12. Cavalieri, E. and Calvin, M. 220MH_z nuclear magnetic resonance analysis and the selective deuteriodeprotonation of benzo[*a*]pyrene and 6-methylbenzo[*a*]pyrene. J. Chem. Soc., Perkin Trans. I:1253-1256, 1972.

13. Gravel, D., Hebert, J., Bilodeau, J., Cavalieri, E. and Davis, J.P. The photochemical isomerization of N-bromo-∀, ∃-unsaturated lactams; and intermolecular allylic bromination process involving a probably bromine radical chain. Can. J. Chem. 52:645-652, 1974.

14. Cavalieri, E. and Auerbach, R. Reactions between activated benzo[*a*]pyrene and nucleophilic compounds with possible implications on the mechanism of tumor initiation. J. Natl. Cancer Inst. 53:393-397, 1974.

15. Rogan, E.G. and Cavalieri, E. 3-Methylcholanthrene-inducible binding of aromatic hydrocarbons to DNA in purified rat liver nuclei. Biochem. Biophys. Res. Commun. 58:1119-1126, 1974.

16. Grandjean, C. and Cavalieri, E. The mechanism of microsomal hydroxylation of 7-methylbenz[*a*]anthracene and 7,12-dimethylbenz[*a*]anthracene by oxygen-18 studies. Biochem. Biophys. Res. Commun. 61:912-919, 1974.

17. Cavalieri, E., Garcia, H., Mailander, P. and Patil, K. Isotope effect on the carcinogenicity of 3-methylcholanthrene in mouse skin by selective deuteration of the 1-methylene group: Biological evidence for a mechanism of tumor initiation. Chem.-Biol. Interact. 11:179-189, 1975.

18. Cavalieri, E., Roth, R., Mailander, P. and Patil, K. Isotope effect on the carcinogenicity of 3-methylcholanthrene after selective deuteration of the 1-methylene group. In: Proceedings of the Second International Conference on Stable Isotopes (E.R. Klein and P.D. Klein, eds.), pp. 19-31, Oak Brook, Illinois, October 20-23, 1975, ERDA Conf-751207.

19. Cavalieri, E. and Calvin, M. Charge localization in the carbonium ions of methylbenz-anthracenes. J. Org. Chem. 41:2676-2679, 1976.

20. Cavalieri, E. and Roth, R. Reaction of methylbenzanthracenes and pyridine by one-electron oxidation: A model for metabolic activation and binding of carcinogenic aromatic hydrocarbons. J. Org. Chem. 41:2679-2684, 1976.

21. Rogan, E.G., Mailander, P. and Cavalieri, E. Metabolic activation of aromatic hydrocarbons in purified rat liver nuclei: Induction of enzyme activities with and without monooxygenase-catalyzed formation of active oxygen. Proc. Natl. Acad. Sci. USA 73:457-461, 1976. PMCID: PMC335928

22. Cavalieri, E., Roth, R. and Rogan, E.G. Metabolic activation of aromatic hydrocarbons by one-electron oxidation in relation to the mechanism of tumor initiation. In: Polynuclear Aromatic Hydrocarbons: Chemistry, Metabolism and Carcinogenesis Vol 1. (R.I. Freudenthal and P.W. Jones, eds.), pp. 181-190, Raven Press, New York, 1976.

23. Cavalieri, E., Mailander, P. and Pelfrene, A. Carcinogenic activity of anthanthrene in mouse skin. Z. Krebsforsch. 89:113-118, 1977.

24. Rogan, E. and Cavalieri, E. Differences between nuclear and microsomal cytochrome P-450 in uninduced and induced rat liver. Mol. Pharmacol. 14:215-219, 1978.

25. Rogan, E., Roth, R., Katomski, P., Benderson, J. and Cavalieri, E. Binding of benzo[*a*]pyrene at the 1, 3, 6 positions to nucleic acids *in vivo* on mouse skin and *in vitro* with rat liver microsomes and nuclei. Chem.-Biol. Interact. 22:35-51, 1978.

26. Cavalieri, E., Roth, R., Grandjean, C., Althoff, J., Patil, K., Liakus, S. and Marsh, S. Carcinogenicity and metabolic profiles of 6substituted benzo[*a*]pyrene derivatives on mouse skin. Chem.-Biol. Interact. 22:53-67, 1978.

27. Cavalieri, E., Roth, R., Althoff, J., Grandjean, C., Patil K., Marsh, S. and McLaughlin, D. Carcinogenicity and metabolic profiles of 3-methylcholanthrene oxygenated derivatives at the 1 and 2 positions. Chem.-Biol. Interact. 22:69-81, 1978.

28. Rogan, E., Roth, R. and Cavalieri, E. Enzymology of polycyclic hydrocarbon binding to nucleic acids. In: Carcinogenesis, vol. 3, Polynuclear Aromatic Hydrocarbons (P.W. Jones and R.I. Freudenthal, eds.), pp. 267-271, Raven Press, New York, 1978.

29. Cavalieri, E., Roth, R., Rogan, E., Grandjean, C. and Althoff, J. Mechanisms of tumor initiation by polycyclic aromatic hydrocarbons. In: Carcinogenesis, vol. 3 Polynuclear Aromatic Hydrocarbons (P.W. Jones and R.I. Freudenthal, eds.), pp. 273-284, Raven Press, New York, 1978.

30. Cavalieri, E., Roth, R. and Rogan, E. Hydroxylation and conjugation at the benzylic carbon atom: A possible mechanism of carcinogenic activation for some methyl-substituted aromatic hydrocarbons. In: Polynuclear Aromatic Hydrocarbons. Third International Symposium on Chemistry and Biology Carcinogenesis and Mutagenesis (P.W. Jones and P. Leber, eds.), pp. 517- 529, Ann Arbor Publishers, Ann Arbor, MI., 1979.

31. Rogan, E., Roth, R. and Cavalieri, E. Binding of aromatic hydrocarbons to DNA catalyzed by peroxidase and by ATP. In: Polynuclear Aromatic Hydrocarbons. Third International Symposium on Chemistry and Biology Carcinogenesis and Mutagenesis (P.W. Jones and P. Leber, eds.), pp. 685-694, Ann Arbor Publishers, Ann Arbor, MI., 1979.

32. Rogan, E., Katomski, P.A., Roth, R. and Cavalieri, E. Horseradish peroxidase/hydrogen peroxide-catalyzed binding of polycyclic aromatic hydrocarbons to DNA. J. Biol. Chem. 254:7055-7059, 1979.

33. Cavalieri, E., Sinha, D. and Rogan, E. Rat mammary gland versus mouse skin: Different mechanisms of activation of aromatic hydrocarbons. In: Polynuclear Aromatic Hydrocarbons: Chemistry and Biological Effects (A. Bjorseth and A.J. Dennis, eds.), pp. 215-231, Battelle Press, Columbus, Ohio, 1980.

34. Rogan, E., Roth, R. and Cavalieri, E. Manganic acetate and horseradish peroxidase/hydrogen peroxide. *In vitro* models of activation of aromatic hydrocarbons by one-electron oxidation. In: Polynuclear Aromatic Hydrocarbons: Chemistry and Biological Effects (A. Bjorseth and A.J. Dennis, eds.), pp. 259-266, Battelle Press, Ohio, 1980.

35. Rogan, E.G., Roth, R.W., Katomski-Beck, P.A., Laubscher, J.R. and Cavalieri, E.L. Non-enzymatic ATP-mediated binding of hydroxymethyl derivatives of aromatic hydrocarbons to DNA. Chem.-Biol. Interact. 31:51-63, 1980.

36. Alpert, A.J. and Cavalieri, E.L. Metabolism of 6-substituted benzo[*a*]pyrene derivatives: O-dealkylation and regiospecificity in aromatic hydroxylation. J. Med. Chem. 23:919-927, 1980.

37. Cavalieri, E.L., Rogan, E.G. and Thilly, W.G. Carcinogenicity, mutagenicity and binding studies of the environmental contaminant cyclopenteno[*cd*]pyrene and some of its derivatives.

In: Chemical Analysis and Biological Fate: Polynuclear Aromatic Hydrocarbons (W.M. Cooke and A.J. Dennis, eds.), pp. 487-498, Battelle Press, Columbus, Ohio, 1981.

38. Cavalieri, E., Rogan, E., Toth, B. and Munhall, A. Carcinogenicity and nucleic acid binding of the environmental pollutants cyclopenteno[*cd*]pyrene and cyclopentano[*cd*]pyrene in mouse skin. Carcinogenesis 2:277-281, 1981.

39. Barfknecht, T.R., Hites, R.A., Cavalieri, E.L. and Thilly, W.G. Human cell mutagenicity of polycyclic aromatic hydrocarbon components of diesel emissions. In: Toxicological Effects of Emissions from Diesel Engines (J. Lewtas et al., eds.), pp. 277-294, Elsevier, North Holland, New York, 1982.

40. Cavalieri, E. and Rogan, E. Carcinogenicity of 3-methylcholanthrene derivatives and cyclopenteno[*cd*]pyrene in the rat mammary gland. In: Polynuclear Aromatic Hydrocarbons: Physical and Biological Chemistry (W.M. Cooke, A.J. Dennis and G.L. Fisher, eds.), pp. 145-155, Battelle Press, Columbus, Ohio, 1982.

41. Cavalieri, E., Munhall, A., Rogan, E., Salmasi, S. and Patil, K. Syncarcinogenic effect of the environmental pollutants cyclopental[*cd*]pyrene and benzo[*a*]pyrene in mouse skin. Carcinogenesis 4:393-398, 1983.

42. Cavalieri, E. and Rogan, E. One-electron oxidation of aromatic hydrocarbons in chemical and biological systems. In: Polynuclear Aromatic Hydrocarbons: Formation, Metabolism and Measurement (W.M. Cooke and A.J. Dennis, eds.), pp. 1-26, Battelle Press, Columbus, Ohio, 1983.

43. Rogan, E., Cavalieri, E., Munhall, A. and Salmasi, S. Synergistic effect of the environmental contaminants cyclopenta[*cd*]pyrene and benzo[*a*]pyrene in mouse skin carcinogenicity. In: Polynuclear Aromatic Hydrocarbons: Formation, Metabolism and Measurement (W.M. Cooke and A.J. Dennis, eds.), pp. 1035-1046, Battelle Press, Columbus, Ohio, 1983.

44. Cavalieri, E., Rogan, E., Roth, R.W., Saugier, R.K. and Hakam, A. The relationship between ionization potential and horseradish peroxidase/hydrogen peroxide-catalyzed binding of aromatic hydrocarbons to DNA. Chem.-Biol. Interact. 47:87-109, 1983.

45. Rogan, E.G., Hakam, A. and Cavalieri, E. Structure elucidation of a 6-methylbenzo[*a*]pyrene-DNA adduct formed by horseradish peroxidase *in vitro* and mouse skin *in vivo*. Chem.-Biol. Interact. 47:111-122, 1983.

46. Cavalieri, E., Rogan, E., Warner, C. and Bobst, A. Synthesis and characterization of benzo[*a*]pyrene and 6-methylbenzo[*a*]pyrene radical cations. In: Polynuclear Aromatic Hydrocarbons: Mechanisms, Methods and Metabolism (M. Cooke and A.J. Dennis, eds.), pp. 227-236, Battelle Press, Columbus, Ohio, 1984.

47. Rogan, E. and Cavalieri, E. Adduct analysis in the ATP-mediated binding of 6-hydroxymethyl-benzo[*a*]pyrene to DNA. In: Polynuclear Aromatic Hydrocarbons: Mechanisms, Methods and Metabolism (M. Cooke and A.J. Dennis, eds.), pp. 1123-1132, Battelle Press, Columbus, Ohio, 1984.

48. Cavalieri, E., Wong, A., Cremonesi, P., Warner, C. and Rogan, E. Formation of quinones by one-electron oxidation in the metabolism of benzo[*a*]pyrene and 6-fluorobenzo[*a*]pyrene. In: Polynuclear Aromatic Hydrocarbons: Chemistry, Characterization and Carcinogenesis (M. Cooke and A.J. Dennis, eds.), pp. 131-143, Battelle Press, Columbus, Ohio, 1986.

49. Rogan, E., Tibbels, S., Warner, C. and Cavalieri, E. Activation of benzo[*a*]pyrene by one-electron oxidation to form DNA adducts. In: Polynuclear Aromatic Hydrocarbons: Chemistry, Characterization and Carcinogenesis (M. Cooke and A.J. Dennis, eds.), pp. 771-783, Battelle Press, Columbus, Ohio, 1986.

50. Wong, A.K.L., Cavalieri, E. and Rogan, E. Dependence of benzo[*a*]pyrene metabolic profile on the concentration of cumene hydroperoxide with uninduced and induced rat liver microsomes. Biochem. Pharmacol. 35:1583-1588, 1986.

51. Rogan, E.G., Cavalieri, E.L., Walker, B.A., Balasubramanian, R., Wislocki, P.G., Roth, R.W. and Saugier, R.K. Mutagenicity of benzylic acetates, sulfates and bromides of polycyclic aromatic hydrocarbons. Chem.-Biol. Interact. 58:253-275, 1986.

52. Williamson, D.S., Cremonesi P., Cavalieri E., Nagel, D.L. Markin, R.S. and Cohen, S.M. Assignment of ^{1}H NMR spectra of polycyclic aromatic hydrocarbon by multiple quantum and multiple skin filtration. J. Org. Chem. 51:5210-5213, 1986.

53. Cavalieri, E., Wong, A. and Rogan, E. Evidence for distinct binding sites in the cumene hydroperoxide-dependent metabolism of benzo[*a*]pyrene catalyzed by cytochrome P-450. Biochem. Pharmacol. 36:435-440, 1987.

54. Devanesan, P., Rogan, E. and Cavalieri, E. The relationship between ionization potential and prostaglandin H synthase-catalyzed binding of aromatic hydrocarbons to DNA. Chem.-Biol. Interact. 61:89-95, 1987.

55. Cavalieri, E., Rogan, E., and Sinha, D. Carcinogenicity of aromatic hydrocarbons directly applied to rat mammary gland. J. Cancer Res. Clin. Oncol. 114:3-9, 1988.

56. Cavalieri, E., Rogan, E., Cremonesi, P., Higginbotham, S. and Salmasi, S. Tumorigenicity of 6-halogenated derivatives of benzo[*a*]pyrene in mouse skin and rat mammary gland. J. Cancer Res. Clin. Oncol. 114:10-15, 1988.

57. Cavalieri, E., Rogan, E., Higginbotham, S., Cremonesi, P. and Salmasi, S. Tumor-initiating activity in mouse skin and carcinogenicity in rat mammary gland of fluorinated derivatives of benzo[*a*]pyrene and 3-methylcholanthrene. J. Cancer Res. Clin. Oncol. 114:16-22, 1988.

58. Cavalieri, E., Rogan, E., Cremonesi, P. and Devanesan, P. Radical cations as precursors in the metabolic formation of quinones from benzo[*a*]pyrene and 6-fluorobenzo[*a*]pyrene: Fluoro substitution as a probe for one-electron oxidation in aromatic substrates. Biochem. Pharmacol. 37:2173-2182, 1988.

59. Cavalieri, E., Devanesan, P. and Rogan, E. Radical cations in the horseradish peroxidase and prostaglandin H synthase mediated metabolism and binding of benzo[*a*]pyrene to DNA. Biochem. Pharmacol. 37:2183-2188, 1988.

60. Rogan, E., Cavalieri, E., Tibbels, S., Cremonesi, P., Warner, C., Nagel, D., Tomer, K., Cerny, R. and Gross, M. Synthesis and identification of benzo[*a*]pyrene-guanine nucleoside adducts formed by electrochemical oxidation and horseradish peroxidase-catalyzed reaction of benzo[*a*]pyrene with DNA. J. Am. Chem. Soc. 110:4023-4029, 1988.

61. Cavalieri, E.L., Rogan, E.G., Higginbotham, S., Cremonesi, P. and Salmasi, S. Tumor-initiating activity in mouse skin and carcinogenicity in rat mammary gland of dibenzo[*a*]pyrenes: the very potent activity of dibenzo[*a,l*]pyrene. J. Cancer Res. Clin. Oncol. 115:67-72, 1989.

62. Zamzow, D., Jankowiak, R., Cooper, R.S., Small, G.J., Tibbels, S.R., Cremonesi, P., Devanesan, P., Rogan, E.G. and Cavalieri, E.L. Fluorescence line narrowing spectrometric analysis of benzo[*a*]pyrene-DNA adducts formed by one-electron oxidation. Chem. Res. Toxicol. 2:29-34, 1989.

63. Cremonesi, P., Cavalieri, E. and Rogan, E. One-electron oxidation of 6-substituted benzo[*a*]pyrenes by manganic acetate. A model for metabolic activation. J. Org. Chem. 54:3561-3570, 1989.

64. Bodell, W.J., Devanesan, P.D., Rogan, E.G. and Cavalieri, E.L. ^{32}P-Postlabeling analysis of benzo[*a*]pyrene-DNA adducts formed *in vitro* and *in vivo*. Chem. Res. Toxicol. 2:312-315, 1989.

65. Cavalieri, E.L., Rogan, E.G., Devanesan, P.D., Cremonesi, P., Cerny, R.L., Gross, M.L. and Bodell, W.J. Binding of benzo[*a*]pyrene to DNA by cytochrome P-450-catalyzed one-electron oxidation in rat liver microsomes and nuclei. Biochemistry 29:4820-4827, 1990.

66. Cavalieri, E.L., Rogan, E.G., Higginbotham, S., Cremonesi, P. and Salmasi, S. Tumorigenicity of 7,12-dimethylbenz[*a*]anthracene, some of its fluorinated derivatives and 1,2,3,4-tetrahydro-7,12-dimethylbenz[*a*]anthracene in mouse skin and rat mammary gland. Polycyclic Aromatic Compounds 1:59-70, 1990.

67. Cavalieri, E.L. and Rogan, E.G. Radical cations in aromatic hydrocarbon carcinogenesis. Free Radical Res. Commun. 11:77-87, 1990.

68. Rogan, E.G., RamaKrishna, N.V.S., Higginbotham, S., Cavalieri, E.L., Jankowiak, R. and Small, G.J. Identification and quantitation of 7-(benzo[*a*]pyren-6-yl)guanine in the urine and feces of rats treated with benzo[*a*]pyrene. Chem. Res. Toxicol. 3:441-444, 1990.

69. Devanesan, P.D., Cremonesi, P., Nunnally, J.E., Rogan, E.G. and Cavalieri, E.L. Metabolism and mutagenicity of dibenzo[*a,e*]pyrene and the very potent environmental carcinogen dibenzo[*a,l*]pyrene. Chem. Res. Toxicol. 3:580-586, 1990.

70. Augusto, O., Cavalieri, E.L., Rogan, E.G., RamaKrishna, N.V.S. and Kolar, C. Formation of 8-methylguanine as a result of DNA alkylation by methyl radicals generated during horseradish peroxidase-catalyzed oxidation of methylhydrazine. J. Biol. Chem. 265:22093-22096, 1990.

71. Cavalieri, E.L., Devanesan, P.D., Cremonesi, P., Higginbotham, S. and Rogan, E.G. Cytochrome P-450-mediated metabolism and binding of polycyclic aromatic hydrocarbons via radical cation intermediates. In: Polynuclear Aromatic Hydrocarbons: Measurements, Means and Metabolism (M. Cooke, K. Loening and J. Merritt, eds.), pp. 161-178, Battelle Press, Columbus, Ohio, 1991.

72. Rogan, E.G., Devanesan, P.D. and Cavalieri, E.L. Horseradish peroxidase- and prostaglandin H synthase-mediated metabolism and binding of benzo[*a*]pyrene and 6-fluorobenzo[*a*]pyrene via radical cation intermediates. In: Polynuclear Aromatic Hydrocarbons: Measurements, Means and Metabolism (M. Cooke, K. Loening and J. Merritt, eds.), pp. 767-781, Battelle Press, Columbus, Ohio, 1991.

73. Dolnikowski, G.G., Cavalieri, E.L. and Gross, M.L. Isomer differentiation in 7,12-dimethylbenz[*a*]anthracene-pyridine adducts by fast atom bombardment tandem mass spectrometry. J. Am. Soc. Mass Spectrom. 2:256-258, 1991.

74. Todorovic, R., Devanesan, P.D., Cavalieri, E.L., Rogan, E.G., Park, S.S. and Gelboin, H.V. A monoclonal antibody to rat liver cytochrome P-450 IIC11 strongly and regiospecifically inhibits constitutive benzo[*a*]pyrene metabolism and DNA binding. Molec. Carcinogenesis 4:308-314, 1991.

75. Cavalieri, E.L., Higginbotham, S., RamaKrishna, N.V.S., Devanesan, P.D., Todorovic, R., Rogan, E.G. and Salmasi, S. Comparative dose-response tumorigenicity studies of dibenzo[*a,l*]pyrene *vs* 7,12-dimethylbenz[*a*]anthracene, benzo[*a*]pyrene and two dibenzo[*a,l*]-pyrene dihydrodiols in mouse skin and rat mammary gland. Carcinogenesis 12:1939-1944, 1991.

76. RamaKrishna, N.V.S., Cavalieri, E.L., Rogan, E.G., Dolnikowski, G.G., Cerny, R.L., Gross, M.L., Jeong, H., Jankowiak, R. and Small, G.J. Synthesis and structure determination of the adducts of the potent carcinogen 7,12-dimethylbenz[*a*]anthracene and deoxyribonucleosides formed by electrochemical oxidation: Models for metabolic activation by one-electron oxidation. J. Am. Chem. Soc. 114:1863-1874, 1992.

77. RamaKrishna, N.V.S., Gao, F., Padmavathi, N.S., Cavalieri, E.L., Rogan, E.G., Cerny, R.L. and Gross, M.L. Model adducts of benzo[*a*]pyrene and nucleosides formed from its radical cation and diol epoxide. Chem. Res. Toxicol. 5:293-302, 1992.

78. Devanesan, P.D., RamaKrishna, N.V.S., Todorovic, R., Rogan, E.G., Cavalieri, E.L., Jeong, H., Jankowiak, R. and Small, G.J. Identification and quantitation of benzo[*a*]pyrene-DNA adducts formed by rat liver microsomes *in vitro*. Chem. Res. Toxicol. 5:302-309, 1992.

79. RamaKrishna, N.V.S., Devanesan, P.D., Rogan, E.G., Cavalieri, E.L., Jeong, H., Jankowiak, R. and Small, G.J. Mechanism of metabolic activation of the potent carcinogen 7,12-dimethyl-benz[*a*]anthracene. Chem. Res. Toxicol. 5:220-226, 1992.

80. Cremonesi, P., Rogan, E. and Cavalieri, E. Correlation studies of anodic peak potentials and ionization potentials for polycylic aromatic hydrocarbons. Chem. Res. Toxicol. 5:346-355, 1992.

81. Cremonesi, P., Hietbrink, B., Rogan, E.G. and Cavalieri, E.L. One-electron oxidation of dibenzo[*a*]pyrenes by manganic acetate. J. Org. Chem. 57:3309-3312, 1992.

82. Netto, L.E.S., RamaKrishna, N.V.S., Kolar, C., Cavalieri, E.L., Rogan, E.G., Lawson, T.E. and Augusto, O. Identification of C^8-methylguanine in the hydrolysates of DNA from rats administered 1,2-dimethylhydrazine: Evidence for *in vivo* DNA alkylation by methyl radicals. J. Biol. Chem., 267:21524-21527, 1992.

83. Dwivedy, I., Devanesan, P., Cremonesi, P., Rogan, E. and Cavalieri, E. Synthesis and characterization of estrogen 2,3- and 3,4-quinones. Comparison of DNA adducts formed by the quinones *versus* horseradish peroxidase-activated catechol estrogens. Chem. Res. Toxicol., 5:828-833, 1992.

84. Cavalieri, E.L., Rogan, E.G., RamaKrishna, N.V.S. and Devanesan, P.D. Mechanisms of benzo[*a*]pyrene and 7,12-dimethylbenz[*a*]anthracene activation: Qualitative aspects of the stable and depurination DNA adducts obtained from radical cations and diol epoxides. Polycyclic Aromatic Compounds (P. Garrigues and M. Lamotte, eds.) pp 725-732, Gordon and Breach Science Publishers, Langhorne, Pennsylvania, 1993.

85. Rogan, E.G., Cavalieri, E.L., RamaKrishna, N.V.S. and Devanesan, P.D. Mechanisms of benzo[*a*]pyrene and 7,12-dimethylbenz[*a*]anthracene activation: Quantitative aspects of the stable and depurination DNA adducts obtained from radical cations and diol epoxides. Polycyclic Aromatic Compounds (P. Garrigues and M. Lamotte, eds.) pp 733-740, Gordon and Breach Science Publishers, Langhorne, Pennsylvania, 1993.

86. Cavalieri, E.L., Rogan, E.G., Murray, W.J. and RamaKrishna, N.V.S. Mechanistic aspects of benzo[*a*]pyrene metabolism. Polycyclic Aromatic Compounds (P. Garrigues and M. Lamotte, eds.) pp 1047-1054, Gordon and Breach Science Publishers, Langhorne, Pennsylvania, 1993.

87. Rogan, E.G., Devanesan, P.D., RamaKrishna, N.V.S., Higginbotham, S., Padmavathi, N.S., Chapman, K., Cavalieri, E.L., Jeong, H., Jankowiak, R. and Small, G.J. Identification and quantitation of benzo[*a*]pyrene-DNA adducts formed in mouse skin. Chem. Res. Toxicol., 6:356-363, 1993.

88. Devanesan, P.D., RamaKrishna, N.V.S., Padmavathi, N.S., Higginbotham, S., Rogan, E.G., Cavalieri, E.L., Marsch, G.A., Jankowiak, R. and Small, G.J. Identification and quantitation of 7,12-dimethylbenz[*a*]anthracene-DNA adducts formed in mouse skin. Chem. Res. Toxicol., 6:364-371, 1993.

89. Higginbotham, S., RamaKrishna, N.V.S., Johansson, S.L., Rogan, E.G. and Cavalieri, E.L. Tumor-initiating activity and carcinogenicity of dibenzo[*a,l*]pyrene *versus* 7,12-dimethylbenz[*a*]anthracene and benzo[*a*]pyrene at low doses in mouse skin. Carcinogenesis, 14:875-878, 1993.

90. Todorovic, R., Devanesan, P.D., Rogan, E.G. and Cavalieri, E.L. ^{32}P-Postlabeling analysis of the DNA adducts of 6-fluorobenzo[*a*]pyrene and 6-methylbenzo[*a*]pyrene formed *in vitro*. Chem. Res. Toxicol., 6:530-534, 1993.

91. RamaKrishna, N.V.S., Padmavathi, N.S., Cavalieri, E.L., Rogan, E.G., Cerny, R.L. and Gross, M.L. Synthesis and structure determination of the adducts formed by electrochemical oxidation of the potent carcinogen dibenzo[*a,l*]pyrene in the presence of nucleosides. Chem. Res. Toxicol., 6:554-560, 1993.

92. Mulder, P., RamaKrishna, N.V.S., Cremonesi, P., Rogan, E.G. and Cavalieri, E.L. Synthesis of 1- and 3-fluorobenzo[*a*]pyrene. Chem. Res. Toxicol., 6:657-661, 1993.

93. RamaKrishna, N.V.S., Li, K.-M., Rogan, E.G., Cavalieri, E.L., George, M., Cerny, R.L. and Gross, M.L. Adducts of 6-methylbenzo[*a*]pyrene and 6-fluorobenzo[*a*]pyrene formed by electrochemical oxidation in the presence of deoxyribonucleosides. Chem. Res. Toxicol., 6:837-845, 1993.

94. Cavalieri, E., Higginbotham, S. and Rogan, E. Dibenzo[*a,l*]pyrene: The most potent carcinogenic aromatic hydrocarbon. Polycyclic Aromat. Compd., 6:177-183, 1994.

95. Casale, G.P., Todorovic, R., RamaKrishna, N.V.S., Rogan, E. and Cavalieri, E. Development of methods for the production of monoclonal antibodies specific for depurination adducts of benzo[*a*]pyrene and for their use in a competitive enzyme-linked immunosorbent assay. Polycyclic Aromat. Compd., 6:53-61, 1994.

96. Li, K.-M., RamaKrishna, N.V.S., Padmavathi, N.S., Rogan, E.G. and Cavalieri, E.L. Synthesis and structure determination of the adducts of dibenzo[*a,l*]pyrene diol epoxides and deoxy-adenosine or deoxyguanosine. Polycyclic Aromat. Compd., 6:207-213, 1994.

97. Devanesan, P., Todorovic, R., Rogan, E. and Cavalieri, E. Effect of 7-hydroxybenzo[*a*]pyrene (7-OHBP) on BP metabolism and formation of BP-DNA adducts. Polycyclic Aromat. Compd., 6:111-118, 1994.

98. Rogan, E., Higginbotham, S., Devanesan, P. and Cavalieri, E. Covalent binding of BP to free and membrane-bound DNA in isolated liver nuclei from 3-methylcholanthrene-induced rats. Polycyclic Aromat. Compd., 6:119-126, 1994.

99. Cavalieri, E., Devanesan, P., Mulder, P., RamaKrishna, N.V.S. and Rogan, E. Metabolism of 1- and 3-fluorobenzo[*a*]pyrene by cytochrome P-450 and horseradish peroxidase. Polycyclic Aromat. Compd., 7:129-136, 1994.

100. Cavalieri, E. Minisymposium on endogenous carcinogens: The catechol estrogen pathway. An introduction. Polycyclic Aromat. Compd., 6:223-228, 1994.

101. Cavalieri, E. The approach to understanding aromatic hydrocarbon carcinogenesis. The role of radical cations and diol epoxides in metabolic activation. Cancer Biochem. Biophys., 14:109-110, 1994.

102. George, M., Wellemans, J.M.Y., Cerny, R.L., Gross, M.L., Li, K.-M. and Cavalieri, E.L. Matrix design for MALDI: Sensitive determination of PAH-DNA adducts. J. Am. Soc. Mass Spectrom., 5:1021-1025, 1994.

103. Gill, H.S., Kole, P.L., Wiley, J.C., Li, K.-M., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. Synthesis and tumor-initiating activity in mouse skin of dibenzo[*a,l*]pyrene *syn*- and *anti*-fjord-region diol epoxides. Carcinogenesis, 15:2455-2460, 1994.

104. Cremonesi, P., Stack, D.E., Rogan, E.G. and Cavalieri, E.L. Radical cations of benzo[*a*]pyrene and 6-substituted derivatives: Synthesis and reaction with nucleophiles. J. Org. Chem., 59:7683-7687, 1994.

105. Li, K.-M., Todorovic, R., Rogan, E.G., Cavalieri, E.L., Ariese, F., Suh, M., Jankowiak, R. and Small, G.J. Identification and quantitation of dibenzo[*a,l*]pyrene-DNA adducts formed by rat liver microsomes *in vitro*: Preponderance of depurinating adducts. Biochemistry, 34:8043-8049, 1995.

106. Chakravarti, D., Pelling, J.C., Cavalieri, E.L. and Rogan, E.G. Relating aromatic hydrocarbon-induced DNA adducts and c-Harvey-*ras* mutations in mouse skin papillomas: The role of apurinic sites. Proc. Natl. Acad. Sci. USA, 92:10422-10426, 1995. PMCID: PMC40809

107. Cavalieri, E.L. and Rogan, E.G. Central role of radical cations in metabolic activation of polycyclic aromatic hydrocarbons. Xenobiotica, 25:677-688, 1995.

108. Stack, D.E., Cremonesi, P., Hanson, A., Rogan, E.G. and Cavalieri, E.L. Radical cations of benzo[*a*]pyrene and 6-substituted derivatives: Reaction with nucleophiles and DNA. Xenobiotica, 25:755-760, 1995.

109. Stack, D., Byun, J., Gross, M.L., Rogan, E.G. and Cavalieri, E. Molecular characteristics of catechol estrogen quinones in reactions with deoxyribonucleosides. Chem. Res. Toxicol., 9:851-859, 1996.

110. Chen, L., Devanesan, P.D., Higginbotham, S., Ariese, F., Jankowiak, R., Small, G.J., Rogan, E.G. and Cavalieri, E.L. Expanded analysis of benzo[*a*]pyrene-DNA adducts formed *in vitro* and in mouse skin: Their significance in tumor initiation. Chem. Res. Toxicol., 9:897-903, 1996.

111. Casale, G., Rogan, E., Stack, D., Devanesan, P. and Cavalieri, E. Production and immuno-chemical characterization of a high-affinity monoclonal antibody specific for 7-(benzo[*a*]pyren-6-yl)guanine (BP-6-N7Gua), a depurinating DNA adduct of benzo[*a*]pyrene. Polycyclic Aromat. Compd., 10:195-201, 1996.

112. Ariese, F., Jankowiak, R., Suh, M., Small, G.J., Chen, L., Devanesan, P.D., Li, K.-M., Todorovic, R., Rogan, E.G. and Cavalieri, E.L. Identification of PAH-DNA depurinating adducts by means of fluorescence line narrowing spectroscopy. Polycyclic Aromat. Compd., 10:227-234, 1996.

113. Cavalieri, E. and Rogan, E. The primary role of apurinic sites in tumor initiation. Polycyclic Aromat. Compd., 10:251-258, 1996.

114. Casale, G.P., Rogan, E.G., Stack, D., Devanesan, P. and Cavalieri, E.L. Production of a high-affinity monoclonal antibody specific for 7-(benzo[*a*]pyren-6-yl)guanine and its application in a competitive enzyme-linked immunosorbent assay. Chem. Res. Toxicol., 9:1037-1043, 1996.

115. Devanesan, P.D., Higginbotham, S., Ariese, F., Jankowiak, R., Suh, M., Small, G.J., Cavalieri, E.L. and Rogan, E.G. Depurinating and stable benzo[*a*]pyrene-DNA adducts formed in isolated rat liver nuclei. Chem. Res. Toxicol., 9:1113-1116, 1996.

116. Mulder, P.P.J., Chen, L., Sekhar, B.C., George, M., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Synthesis and structure determination of the adducts formed by electrochemical oxidation of 1,2,3,4-tetrahydro-7,12-dimethylbenz[*a*]anthracene in the presence of deoxyribonucleosides or adenine. Chem. Res. Toxicol., 9:1264-1277, 1996.

117. Chen, L., Devanesan, P.D., Byun, J., Gooden, J.K., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Synthesis of depurinating DNA adducts formed by one-electron oxidation of 7H-dibenzo[*c,g*]carbazole and identification of these adducts after activation with rat liver microsomes. Chem. Res. Toxicol., 10:225-233, 1997.

118. Casale, G.P., Higginbotham, S., Johansson, S.L., Rogan, E.G., and Cavalieri, E.L. Inflammatory response of mouse skin exposed to the very potent carcinogen, dibenzo[*a,l*]-pyrene: A model for tumor promotion. Fund. Appl. Toxicol., 36, 71-78, 1997.

119. Todorovic, R., Ariese, F., Devanesan, P., Jankowiak, R., Small, G. J., Rogan, E. and Cavalieri, E. Determination of benzo[*a*]pyrene- and 7,12-dimethylbenz[*a*]anthracene-DNA adducts formed in rat mammary glands. Chem. Res. Toxicol., 9, 941-947, 1997.

120. Byun, J., Gooden, J., Ramanathan, R., Li, K.-M., Cavalieri, E.L. and Gross, M.L. Determination of dibenzo[*a,l*]pyrene-adenine adducts by six different tandem mass spectrometric experiments. J. Am. Soc. Mass Spectrom., 9:977-986, 1997.

121. Cavalieri, E.L., Stack, D.E., Devanesan, P.D., Todorovic, R., Dwivedy, I., Higginbotham, S., Johansson, S.L., Patil, K.D., Gross, M.L., Gooden, J.K., Ramanathan, R., Cerny, R.L. and Rogan, E.G. Molecular origin of cancer: Catechol estrogen-3,4-quinones as endogenous tumor initiators. Proc. Natl. Acad. Sci. USA, 94, 10937-10942, 1997. PMCID: PMC23537

122. Gooden, J.K., Byun, J., Chen, L., Rogan, E.G., Cavalieri, E.L. and Gross, M.L. Application of MALDI and PSD to the structure determination of adducts between DNA bases and the carcinogen 7H-dibenzo[*c,g*]carbazole. Int. J. Mass Spectrom. Ion Proc., 169/170, 241-249, 1997.

123. Cavalieri, E.L. and Rogan, E.G. Role of aromatic hydrocarbons in disclosing how catecholestrogens initiate cancer, in the volume series *Advances in Pharmacology*, "Catecholamines: Bridging Basic Science with Clinical Medicine," (D.S. Goldstein and G. Eisenhofer, eds.), pp. 837-840, Academic Press, New York, 1998.

124. Stack, D.E., Cavalieri, E.L. and Rogan, E.G. Catecholestrogens as procarcinogens: Depurinating adducts and tumor initiation, in the volume series *Advances in Pharmacology*, "Catecholamines: Bridging Basic Science with Clinical Medicine," (D.S. Goldstein and G. Eisenhofer, eds.), pp. 833-836, Academic Press, New York, 1998.

125. Jan, S.-T., Rogan, E. and Cavalieri, E. Large-scale synthesis of the catechol metabolites of diethylstilbestrol and hexestrol. Chem. Res. Toxicol., 11:408-411, 1998.

126. Jan, S.-T., Devanesan, P., Stack, D., Ramanathan, R., Byun, J., Gross, M.L., Rogan, E. and Cavalieri, E. Metabolic activation and formation of DNA adducts of hexestrol, a synthetic non-steroidal carcinogenic estrogen. Chem. Res. Toxicol., 11:412-419, 1998.

127. Ramanathan, R., Cao, K., Cavalieri, E.L. and Gross, M.L. Mass spectrometric methods for distinguishing structural isomers of glutathione adducts of estrone and estradiol. J. Am. Soc. Mass Spectrom., 9:612-619, 1998.

128. Chakravarti, D., Mailander, P., Franzen, J., Higginbotham, S., Cavalieri, E. and Rogan, E. Detection of dibenzo[*a,l*]pyrene-induced H-*ras* codon 61 mutant genes in preneoplastic SENCAR mouse skin using a new PCR-RFLP method. Oncogene, 16:3203-3210, 1998.

129. Chakravarti, D., Cavalieri, E. and Rogan, E. Linear amplification mapping of polycyclic aromatic hydrocarbon-reactive sequences in H-*ras* gene. DNA and Cell Biology, 17:529-539, 1998.

130. Cao, K., Stack, D.E., Ramanathan, R., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Synthesis and structure elucidation of estrogen quinones conjugated with cysteine, *N*-acetylcysteine and glutathione. Chem. Res. Toxicol., 11:909-916, 1998.

131. Cao, K., Devanesan, P.D., Ramanathan, R., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Covalent binding of catechol estrogens to glutathione catalyzed by horseradish peroxidase, lactoperoxidase or rat liver microsomes. Chem. Res. Toxicol., 11:917-924, 1998.

132. Hanson,A.A., Rogan, E.G. and Cavalieri, E.L. Synthesis of adducts formed by iodine oxidation of aromatic hydrocarbons in the presence of deoxyribonucleosides and nucleobases. Chem. Res. Toxicol., 11:1201-1208, 1998.

133. Jankowiak, R., Zamzow, D., Stack, D.E., Todorovic, R., Cavalieri, E.L. and Small, G.J. Spectral characterization of fluorescently labeled catechol estrogen 3,4-quinone derived N7 guanine adducts and their identification in rat mammary gland tissue. Chem. Res. Toxicol., 11:1339-1345, 1998.

134. Li, K.-M., Byun, J., Gross, M.L., Zamzow, D., Jankowiak, R., Rogan, E.G. and Cavalieri, E.L. Synthesis and structure determination of the adducts formed by electrochemical oxidation of dibenzo[*a,l*]pyrene in the presence of adenine. Chem. Res. Toxicol., 12:749-757, 1999.

135. Li, K.-M., George, M., Gross, M.L., Seidel, A., Luch, A., Rogan, E.G. and Cavalieri, E.L. Structure elucidation of the adducts formed by fjord region dibenzo[*a,l*]pyrene-11,12-dihydrodiol 13,14-epoxides with deoxyadenosine. Chem. Res. Toxicol., 12:758-767, 1999.

136. Li, K.-M., George, M., Gross, M.L., Lin, C.-H., Jankowiak, R., Small, G.J., Seidel, A., Kroth, H., Rogan, E.G. and Cavalieri, E.L. Structure elucidation of the adducts formed by fjord region dibenzo[*a,l*]pyrene-11,12-dihydrodiol 13,14-epoxides with deoxyguanosine. Chem. Res. Toxicol., 12:778-788, 1999.

137. Devanesan, P., Ariese, F., Jankowiak, R., Small, G.J., Rogan, E.G. and Cavalieri, E.L. Preparation, isolation and characterization of dibenzo[*a,l*]pyrene diol epoxide-deoxyribonucleoside monophosphate adducts by HPLC and fluorescence line-narrowing spectroscopy. Chem. Res. Toxicol., 12:789-795, 1999.

138. Devanesan, P., Ariese, F., Jankowiak, R., Small, G.J., Rogan, E.G. and Cavalieri, E.L. A novel method for the isolation and identification of stable DNA adducts formed by dibenzo[*a,l*]pyrene and dibenzo[*a,l*]pyrene 11,12-dihydrodiol 13,14-epoxides *in vitro*. Chem. Res. Toxicol., 12:796-801, 1999.

139. Casale, G.P., Cheng, Z., Liu, J., Cavalieri, E.L. and Singhal, M. Profiles of cytokine mRNAs in the skin and lymph nodes of SENCAR mice treated epicutaneously with dibenzo[*a,l*]pyrene or dimethylbenz[*a*]anthracene reveal a direct correlation between carcinogen-induced contact hypersensitivity and epidermal hyperplasia. Molec. Carcinogenesis, 27:125-140, 2000.

140. Cavalieri, E.L., Vauthier, E.C., Cossé-Barbi, A. and Fliszár, S. The glycosyl $C_{1'}$-N_9 bond of deoxyadenosine and deoxyguanosine: Response to electrophilic attacks on the purinic nitrogen atoms. Theor. Chem. Acc., 104:235-239, 2000.

141. Badawi, A.F., Cavalieri, E.L. and Rogan, E.G. Effect of chlorinated hydrocarbons on the expression of cytochrome P450 1A1, 1A2 and 1B1and on the 2-and 4-hydroxylation of 17β-estradiol in female Sprague-Dawley rats. Carcinogenesis, 21:1593-1599, 2000.

142. Hanson, A.A., Li, K.-M., Lin, C.-H., Jankowiak, R., Small, G.J., Rogan, E.G. and Cavalieri, E.L. Synthesis and structure determination of 6-methylbenzo[*a*]pyrene-deoxyribonucleoside adducts and their identification and quantification *in vitro* and mouse skin. Chem.-Biol. Interact., 128:65-90, 2000.

143. Fliszar, S., Vauthier, E. C., Cossé-Barbi, A. and Cavalieri, E. L. Approximate but realistic estimates of bond properties in alkylamines. J. Mol. Struct. (Theochem) 531:387-399, 2000.

144. Chakravarti, D, Mailander P., Cavalieri, E.L. and Rogan, E.G. Evidence that error-prone DNA repair converts dibenzo[*a,l*]pyrene-induced depurinating lesions into mutations: Formation, clonal proliferation and regression of initiated cells carrying H-*ras* oncogene mutations in early preneoplasia. Mutat. Research, 456:17-32, 2000.

145. Casale, G.P., Singhal, M., Bhattacharya, S., Ramanathan, R., Roberts, K.P., Zhao, J., Jankowiak, R., Gross, M.L., Cavalieri, E.L., Small, G.J., Rennard, S.I., Mumford, J.L. and Shen, M. Detection and quantification of depurinated benzo[*a*]pyrene-adducted DNA bases in the urine of cigarette smokers and women exposed to household coal smoke. Chem. Res. Toxicol., 14:192-201, 2001.

146. Devanesan, P., Todorovic, R., Zhao, J., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Catechol estrogen conjugates and DNA adducts in the kidney of male Syrian golden hamsters treated with 4-hydroxyestradiol: Potential biomarkers for estrogen-initiated cancer. Carcinogenesis, 22:489-497, 2001.

147. Todorovic, R., Devanesan, P., Higginbotham, S., Zhao, J., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Analysis of potential biomarkers of estrogen-initiated cancer in the urine of Syrian golden hamsters treated with 4-hydroxyestradiol. Carcinogenesis, 22:905-911, 2001.

148. Badawi, A.F., Cavalieri, E.L., and Rogan, E.G. Role of human cytochrome P450 1A1, 1A2, 1B1 and 3A4 in the 2-,4-, and 16∀-hydroxylation of 17∃-estradiol. Metabolism, 50:1001-1003, 2001.

149. Cavalieri, E.L., Kumar, S., Todorovic, R., Higginbotham, S., Badawi, A.F. and Rogan, E.G. Imbalance of estrogen homeostasis in kidney and liver of hamsters treated with estradiol: Implications for estrogen-induced initiation of renal tumors. Chem. Res. Toxicol., 14:1041-1050, 2001.

150. Devanesan, P., Santen, R.J., Bocchinfuso, W.P., Korach, K.S., Rogan, E.G. and Cavalieri, E.L. Catechol estrogen metabolites and conjugates in mammary tumors with hyperplastic tissue from estrogen receptor-∀ knock-out (ERKO)/Wnt-1 mice: Implications for initiation of mammary tumors. Carcinogenesis, 22:1573-1576, 2001.

151. Chakravarti, D., Mailander, P., Li, K.-M., Higginbotham, S., Zhang, H., Gross, M.L., Cavalieri, E. and Rogan, E. Evidence that a burst of DNA depurination in SENCAR mouse skin induces error-prone repair and form mutations in the H-*ras* gene. Oncogene, 20:7945-7953, 2001.

152. Cavalieri, E.L., Devanesan, P., Bosland, M.C., Badawi, A.F. and Rogan, E.G. Catechol estrogen metabolites and conjugates in different regions of the prostate of Noble rats treated with 4-hydroxyestradiol: Implications for estrogen-induced initiation of prostate cancer. Carcinogenesis, 23:329-333, 2002.

153. Cavalieri, E.L., Li, K.-M., Balu, N., Saeed, M., Devanesan, P., Higginbotham, S., Zhao, J., Gross, M.L. and Rogan, E. Catechol ortho-quinones: The electrophilic compounds that form depurinating DNA adducts and could initiate cancer and other diseases. Carcinogenesis, 23:1071-1077, 2002.

154. Mulder, P.P.J., Devanesan, P., van Alem, K., Lodder, G., Rogan, E.G. and Cavalieri, E.L. Fluorobenzo[*a*]pyrenes as probes of the mechanism of cytochrome P450-catalyzed oxygen transfer in aromatic oxygenations. Free Rad. Biol. & Med., 34:734-745, 2003.

155. Jankowiak, R., Markushin, Y., Cavalieri, E.L. and Small, G.J. Spectroscopic characterization of the 4-hydroxy catechol estrogen quinones-derived GSH and N-acetylated Cys conjugates. Chem. Res. Toxicol., 16:304-311, 2003.

156. Rogan, E.G., Badawi, A.F., Devanesan, P.D., Meza, J.L., Edney, J.A., West, W.W., Higginbotham, S.M. and Cavalieri, E.L. Relative imbalances in estrogen metabolism and conjugation in breast tissue of women with carcinoma: Potential biomarkers of susceptibility to cancer. Carcinogenesis, 24:697-702, 2003.

157. Yue, W., Santen, R.J., Wang, J-P., Li, Y., Verderame, M.F., Bocchinfuso, W.P., Korach, K.S., Devanesan, P., Todorovic, R., Rogan, E.G. and Cavalieri, E.L. Genotoxic metabolites of estradiol in breast: Potential mechanism of estradiol induced carcinogenesis. J. Steroid Biochem. Mol. Biol., 86:477-486, 2003.

158. Markushin, Y., Zhong, W., Cavalieri, E.L., Rogan, E.G., Small, G.J., Yeung, E.S. and Jankowiak, R. Spectral characterization of catechol estrogen quinone (CEQ)-derived DNA adducts and their identification in human breast tissue extract. Chem. Res. Toxicol., 16:1107-1117, 2003.

159. Li, K.-M., Todorovic, R., Devanesan, P., Higginbotham, S., Köfeler, H., Ramanathan, R., Gross, M.L., Rogan, E.G. and Cavalieri, E.L. Metabolism and DNA binding studies of 4-hydroxyestradiol and estradiol-3,4-quinone *in vitro* and in female ACI rat mammary gland *in vivo*. Carcinogenesis, 25:289-297, 2004.

160. Chapman, K.A., Cavalieri, E.L. and Rogan, E.G. Repair of short oligodeoxyribonucleotides containing a stable adduct and an apurinic site by extracts of MCF-10A1 cells. Anticancer Res., 24:117-122, 2004.

161. Rogan, E.G. and Cavalieri, E.L. The role of specific estrogen metabolites in the initiation of breast and other human cancers. Int. J. Cancer Prev., 1:243-249, 2004.

162. Saeed, M., Zahid, M., Gunselman, S.J., Rogan, E. and Cavalieri, E. Slow loss of deoxyribose from the N7deoxyguanosine adducts of estradiol-3,4-quinone and hexestrol-3′,4′-quinone. Implications for mutagenic activity. Steroids, 70:29-35, 2005.

163. Saeed, M., Gunselman, S.J., Higginbotham, S., Rogan, E. and Cavalieri, E. Formation of the depurinating N3adenine and N7guanine adducts by reaction of DNA with hexestrol-3′-4′-quinone or enzyme-activated 3′-hydroxyhexestrol. Implications for a unifying mechanism of tumor initiation by natural and synthetic estrogens. Steroids, 70:37-45, 2005.

164. Yue, W., Wang, J.-P., Li, Y., Bocchinfuso, W., Korach, K., Devanesan, P., Rogan, E., Cavalieri, E. and Santen, R.J. Tamoxifen versus aromatase inhibitors for breast cancer prevention. Clin. Cancer Res., 11:925s-930s, 2005.

165. Saeed, M., Zahid, M., Rogan, E. and Cavalieri, E. Synthesis of the catechols of natural and synthetic estrogens by using 2-iodoxybenzoic acid (IBX) as the oxidizing agent. Steroids, 70:173-178, 2005.

166. Saeed, M., Rogan, E., and Cavalieri, E. Novel *spiro*-quinone formation from 3′-hydroxydiethylstilbestrol after oxidation with silver oxide. Tetrahedron Lett., 46:4449-4451, 2005.

167. Cavalieri, E.L., Rogan, E.G., Li, K.-M., Todorovic, R., Ariese, F., Jankowiak, R., Grubor, N. and Small, G.J. Identification and quantification of the depurinating DNA adducts formed in mouse skin treated with dibenzo[*a,l*]pyrene (DB[*a,l*)P), or its metabolites and in rat mammary gland treated with DB[*a,l*]P. Chem. Res. Toxicol., 18:976-983, 2005.

168. Todorovic, R., Devanesan, P., Rogan, E. and Cavalieri, E. Identification and quantification of stable DNA adducts of dibenzo[*a,l*]pyrene or its metabolites *in vitro*, and in mouse skin and rat mammary gland. Chem. Res. Toxicol., 18:984-990, 2005.

169. Singh, S., Chakravarti, D., Edney, J.A., Hollins, R.R., Johnson, P.J., West, W.W., Higginbotham, S.M., Cavalieri, E.L. and Rogan, E.G. Relative imbalances in the expression of estrogen-metabolizing enzymes in the breast tissue of women with breast carcinoma. Oncology Reports, 14:1091-1096, 2005.

170. Markushin, Y., Kapke, P., Saeed, M., Zhang, H., Dawoud, A., Rogan, E.G., Cavalieri, E.L. and Jankowiak, R. Development of monoclonal antibodies to 4-hydroxyestrogen-2-*N*-acetylcysteine conjugates: Immunoaffinity and spectroscopic studies. Chem. Res. Toxicol., 18:1520-1527, 2005.

171. Chakravarti, D., Badawi, A.F., Venugopal, D., Meza, J.L., Crandall, L.Z., Rogan, E.G. and Cavalieri, E.L. Improved measurement of dibenzo[*a,l*]pyrene-induced abasic sites by the aldehyde-reactive probe assay. Mutat. Res., 588:158-165, 2005.

172. Muti, P., Rogan, E., and Cavalieri, E. Androgens and estrogens in the etiology and prevention of breast cancer. Nutr. Cancer, 56:247-252, 2006.

173. Zahid, M., Kohli, E., Saeed, M., Rogan, E. and Cavalieri, E. The greater reactivity of estradiol-3,4-quinone versus estradiol-2,3-quinone with DNA in the formation of depurinating adducts. Implications for tumor-initiating activity. Chem. Res. Toxicol., 19:164-172, 2006.

174. Zhao, Z., Kosinska, W., Khmelnitsky, M., Cavalieri, E.L., Rogan, E.G., Chakravarti, D., Sacks, P. and Guttenplan, J.B. Mutagenic activity of 4-hydroxyestradiol, but not 2-hydroxyestradiol, in BB rat2 embryonic cells, and the mutational spectrum of 4-hydoxyestradiol. Chem. Res. Toxicol., 19:475-479, 2006.

175. Markushin, Y., Gaikwad, N., Zhang, H., Kapke, P., Rogan, E.G., Cavalieri, E.L., Trock, B.J., Pavlovich, C. and Jankowiak, R. Potential biomarker for early risk assessment of prostate cancer. Prostate, 66:1565-1571, 2006.

176. Chakravarti, D., Zahid, M., Backora, M., Myers, E.M., Gaikwad, N., Weisenburger, D.D., Cavalieri, E.L., Rogan, E.G. and Joshi, S.S. *Ortho*-quinones of benzene and estrogens induce hyperproliferation of human peripheral blood mononuclear cells. Leuk. Lymphoma, 47:2635-2644, 2006.

177. Saeed, M., Higginbotham, S., Rogan, E. and Cavalieri, E. Formation of depurinating N3adenine and N7guanine adducts after reaction of 1,2-naphthoquinone or enzyme-activated 1,2-dihydroxynaphthalene with DNA. Implications for the mechanism of tumor initiation by naphthalene. Chem. Biol. Interact., 165:175-188, 2007.

178. Saeed, M., Rogan, E., Fernandez, S.V., Sheriff, F., Russo, J. and Cavalieri, E. Formation of depurinating N3Adenine and N7Guanine adducts by MCF-10F cells cultured in the presence of 4-hydroxyestradiol. Int. J. Cancer, 120:1821-1824, 2007.

179. Zhang, Y., Gaikwad, N.W., Olson, K., Zahid, M., Cavalieri, E.L. and Rogan, E.G. Cytochrome P450 isoforms catalyze formation of catechol estrogen quinones that react with DNA. Metabolism, 56:887-894, 2007.

180. Lu, F., Zahid, M., Saeed, M., Cavalieri, E.L. and Rogan, E.G. Estrogen metabolism and formation of estrogen-DNA adducts in estradiol-treated MCF-10F cells. The effects of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin induction and catechol-*O*-methyltransferase inhibition. J. Steroid Biochem. Mol. Biol., 105:150-158, 2007. PMCID: PMC1986824

181. Gaikwad, N.W., Rogan, E.G. and Cavalieri, E.L. Evidence from ESI-MS for NQO1-catalyzed reduction of estrogen *ortho*-quinones. Free Radic. Biol. Med., 43:1289-1298, 2007. PMCID: PMC264005

182. Zahid, M., Saeed, M., Lu, F., Gaikwad, N., Rogan, E. and Cavalieri, E.L. Inhibition of catechol-*O*-methyltransferase increases estrogen DNA-adduct formation. Free Radic. Biol. Med., 43:1534-1540, 2007. PMCID: PMC2096412

183. Chakravarti, D., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. SENCAR mouse skin papillomas induced by 6-methylbenzo[*a*]pyrene carry H-*ras* codon 52 ($CTA^{Leu} \rightarrow CCA^{Pro}$) and codon 13 ($GGC^{Gly} \rightarrow GTC^{Val}$) mutations. The Open Dermatol. J., 1: 6-9, 2007.

184. Zahid, M., Gaikwad, N., Rogan, E.G. and Cavalieri, E.L. Inhibition of depurinating estrogen-DNA adducts formation by natural compounds. Chem. Res. Toxicol., 20:1947-1953, 2007.

185. Chakravarti, D., Venugopal, D., Mailander, P.C., Meza, J.L., Higginbotham, S., Cavalieri, E.L. and Rogan, E.G. The role of polycyclic aromatic hydrocarbon-DNA adducts in inducing mutations in mouse skin. Mutat. Res., 649:161-178, 2008. PMCID: PMC2254211

186. Sissung, T.M., Danesi, R., Price, D.K., Steinberg, S.M., de Wit, R., Zahid, M., Gaikwad, N., Cavalieri, E., Dahut, W.L., Sackett, D.L., Figg, W.D. and Sparreboom, A. Association of the *CYP1B1*3* allele with survival in patients with prostate cancer receiving docetaxel. Mol. Cancer Ther., 7:19-26, 2008.

187. Venugopal, D., Zahid, M., Mailander, P.C., Meza, J.L., Rogan, E.G., Cavalieri, E.L. and Chakravarti, D. Reduction of estrogen-induced transformation of mouse mammary epithelial cells by *N*-acetylcysteine. J. Steroid Biochem. Mol. Biol., 109:22-30, 2008. PMCID: PMC2722841

188. Gaikwad, N.W., Yang, L., Muti, P., Meza, J.L., Pruthi, S., Ingle, J.N., Rogan, E.G. and Cavalieri, E.L. The molecular etiology of breast cancer: evidence from biomarkers of risk. Int. J. Cancer, 122:1949-1957, 2008.

189. Lu, F., Zahid, M., Wang, C., Saeed, M., Cavalieri, E.L. and Rogan, E.G. Resveratrol prevents estrogen-DNA adduct formation and neoplastic transformation in MCF-10F cells. Cancer Prev. Res., 1:135-145, 2008.

190. Belzer, R.B., Bus, J.S., Cavalieri, E.L., Lewis, S.C., North, D.W. and Pleus, R.C. The naphthalene state of the science symposium: Objectives, organization, structure, and charge. Regul. Toxicol. Pharmacol., 51:S1-S5, 2008.

191. Brusick, D., Small, M.S., Cavalieri, E.L., Chakravarti, D., Ding, X., Longfellow, D.G., Nakamura, J., Rogan, E.G. and Swenberg, J.A. Possible genotoxic models of action for naphthalene. Regulatory Toxicol. Pharmacol., 51:43-50, 2008.

192. Zahid, M., Gaikwad, N.W., Ali, M.F., Lu, F., Saeed, M., Yang, L., Rogan, E.G. and Cavalieri, E.L. Prevention of estrogen-DNA adduct formation in MCF-10F cells by resveratrol. Free Radic. Biol. Med., 45:136-145, 2008. PMCID: PMC2494714

193. Yang, L., Gaikwad, N., Meza, J., Cavalieri, E., Muti, P., Trock, B. and Rogan, E. Novel biomarkers for risk of prostate cancer. Results from a case-control study. Prostate, 69:41-48, 2009. PMCID: PMC2588647

194. Gaikwad, N.W., Yang, L., Rogan, E.G. and Cavalieri, E.L. Evidence for NQO2-mediated reduction of the carcinogenic estrogen *ortho*-quinones. Free Radic. Biol. Med., 46:253-262, 2009. PMCID: PMC2746554

195. Gaikwad, N.W., Yang, L., Pruthi, S., Ingle, J.N., Sandhu, N., Rogan, E. and Cavalieri, E. Urine biomarkers of risk in the molecular etiology of breast cancer. Breast Cancer: Basic & Clinical Research, 3:1-8, 2009.

196. Saeed, M., Rogan, E. and Cavalieri, E. Mechanism of metabolic activation and DNA adduct formation by the human carcinogen diethylstilbestrol: The defining link to natural estrogens. Int. J. Cancer, 124:1276-1284, 2009. PMCID: PMC2814601

197. Saeed, M., Higginbotham, S., Gaikwad, N., Chakravarti, D., Rogan, E. and Cavalieri, E. Depurinating naphthalene-DNA adducts in mouse skin related to cancer initiation. Free Radic. Biol. Med., 47:1075-1081, 2009.

198. Singh, S., Zahid, M., Saeed, M., Gaikwad, N.W., Meza, J.L., Cavalieri, E.L., Rogan, E.G. and Chakravarti, D. Nad(p)h:Quinone oxidoreductase 1 arg139trp and pro187ser polymorphisms imbalance estrogen metabolism towards DNA adduct formation in human mammary epithelial cells. J. Steroid Biochem. Mol. Biol., 117:56-66, 2009.

199. Gaikwad, N., Yang, L., Weisenburger, D.D., Vose, J., Beseler, C., Rogan, E. and Cavalieri, E. Urinary biomarkers suggest that estrogen-DNA adducts may play a role in the aetiology of non-Hodgkin lymphoma. Biomarkers, 14:502-512, 2009.

200. Zahid, M., Saeed, M., Rogan, E.G. and Cavalieri, E.L. Benzene and dopamine catechol quinones could initiate cancer or neurogenic disease. Free Radic. Biol. Med., 48:318-324, 2010. PMCID: PMC2818485

201. Zahid, M., Saeed, M., Ali, M.F., Rogan, E.G. and Cavalieri, E.L. N-acetylcysteine blocks formation of cancer-initiating estrogen-DNA adducts in cells. Free Radic. Biol. Med., 49:392-400, 2010. PMCID: PMC2900421

202. Cavalieri, E.L. and Rogan, E.G. Is Bisphenol A a weak carcinogen like the natural estrogens and diethylstilbestrol. IUBMB Life, 62:746-751, 2010.

203. Zahid, M., Saeed, M., Beseler, C., Rogan, E.G. and Cavalieri, E.L. Resveratrol and N-acetylcysteine block the cancer-initiating step in MCF-10F cells. Free Radic. Biol. Med., doi: 10.1016/j.freeradbiomed.2010.10.662, 2010.

b. Reviews and Chapters in books

1. Cavalieri, E., Rogan, E. and Roth, R. Multiple mechanisms of activation in aromatic hydrocarbon carcinogenesis. In: Free Radicals and Cancer (R.A. Floyd, ed.), pp. 117-158, Marcel Dekker, New York, 1982.

2. Cavalieri, E.L. and Rogan, E.G. One-electron and two-electron oxidation in aromatic hydrocarbon carcinogenesis. In: Free Radicals in Biology, volume 6 (W.A. Pryor, ed.), pp. 323-369, Academic Press, New York, 1984.

3. Cavalieri, E. and Rogan, E. Role of radical cations in aromatic hydrocarbon carcinogenesis. Environ. Health Perspectives 64:69-84, 1985.

4 Cavalieri, E. and Rogan, E. Metabolic activation by one-electron and two-electron oxidation in aromatic hydrocarbon carcinogenesis. In: Chemical Induction of Cancer, Vol III B by Y.-T. Woo, D.Y. Lay, J.C. Arcos and M.F. Argus, pp. 533-569, Academic Press, New York, 1985.

5. Cavalieri, E.L. and Rogan, E.G. One-electron oxidation in aromatic hydrocarbon carcinogenesis. In: Polycyclic Hydrocarbons and Carcinogenesis, ACS Symposium Series 283 (R.G. Harvey, ed.), pp. 289-305, American Chemical Society, Washington, 1985.

6. Cavalieri, E. and Rogan, E. One-electron oxidation in carcinogenesis and metabolism of polycyclic aromatic hydrocarbons. In: Lectures and Symposia of the 14th International Cancer Congress, Budapest, Vol. 4: Carcinogenesis and Tumour Progression (K. Lapis and S. Eckhardt, eds.), pp. 79-85, Basel, Karger/Budapest, Akademiai Kiado, 1986.

7. Cavalieri, E.L. and Rogan, E.G. The approach to understanding aromatic hydrocarbon carcinogenesis. The central role of radical cations in metabolic activation. Pharmac. Ther., 55:183-199, 1992.

8. Cavalieri, E. and Rogan, E. Mechanisms of tumor initiation by polycyclic aromatic hydrocarbons in mammals. In: The Handbook of Environmental Chemistry, Vol. 3J: PAHs and Related Compounds (A.H. Neilson, ed.), Springer-Verlag, Heidelberg, pp. 81-117, 1998.

9. Cavalieri, E.L. and Rogan, E.G. The key role of catechol estrogen-3,4-quinones in tumor initiation. In: Role of Catechol Quinone Species in Cellular Toxicity (C.R. Creveling, Ed.), F.P. Graham Pub. Co., Johnson City, TN, pp. 247-260, 2000.

10. Cavalieri, E., Frenkel, K., Liehr, J.G., Rogan, E. and Roy, D. Estrogens as endogenous genotoxic agents: DNA adducts and mutations. In: JNCI Monograph: Estrogens as Endogenous Carcinogens in the Breast and Prostate, No. 27, (E. Cavalieri and E. Rogan, Eds.), pp. 75-93. Oxford University Press, Maryland, 2000.

11. Cavalieri, E.L., Rogan, E.G. and Chakravarti, D. Initiation of cancer and other diseases by catechol ortho-quinones: A unifying mechanism. Cell & Mol. Life Sci., 59: 665-681 2002.

12. Cavalieri, E.L. and Rogan, E.G. A unified mechanism in the initiation of cancer. In: Increasing Healthy Life Span, (D. Harman, Ed.), Ann. N.Y. Acad. Sci., 959:341-354, 2002.

13. Cavalieri, E.L. and Rogan, E.G. Fluoro substitution of carcinogenic aromatic hydrocarbons: Models for understanding mechanisms of metabolic activation and of oxygen transfer catalyzed by cytochrome P450. In: The Handbook of Environmental Chemistry, Vol. 3N: Organofluorines (A.H. Neilson, ed.), Springer-Verlag, Heidelberg, pp. 277-293, 2002.

14. Cavalieri, E., Rogan, E. and Chakravarti, D. The role of endogenous catechol quinones in the initiation of cancer and neurodegenerative diseases. In: Methods in Enzymology, Quinones and Quinone Enzymes, Part B (H. Sies & L. Packer, Eds.), Vol. 382, Elsevier, Duesseldorf, Germany, 293-319, 2004.

15. Santen, R.J., Yue, W., Bocchinfuso, W., Korach, K., Wang, J.-P., Rogan, E.G., Li, Y., Cavalieri, E., Russo, J., Devanesan, P. and Verderame, M. Estradiol-induced carcinogenesis via formation of genotoxic metabolites. In: Advances in Endocrine Therapy of Breast Cancer, (J.N. Ingle & M. Dowsett, Eds.), Marcel Dekker, New York, 163-177, 2004.

16. Rogan, E.G. and Cavalieri, E.L. Estrogen metabolites, conjugates and DNA adducts: Possible biomarkers for risk of breast, prostate and other human cancers, In: Adv. Clin. Chem., (G.S. Makowski, G. Nowacki & K.-J. Hsiao, Eds.) 38:135-149, 2004.

17. Cavalieri, E.L. and Rogan, E.G. A unifying mechanism in the initiation of cancer and other diseases by catechol quinones, Ann. NY Acad. Sci., 1028:247-257, 2004.

18. Jankowiak, R., Rogan, E.G. and Cavalieri, E.L. The role of fluorescence line-narrowing spectroscopy and related luminescence-based techniques in the elucidation of mechanisms of tumor initiation by polycyclic aromatic hydrocarbons and estrogens. J. Phys. Chem. B, 108:10266-10283, 2004.

19. Cavalieri, E., Chakravarti, D., Guttenplan, J., Hart, E., Ingle, J., Jankowiak, R., Muti, P., Rogan, E., Russo, J., Santen, R. and Sutter, T. Catechol estrogen quinones as initiators of

breast and other human cancers. Implications for biomarkers of susceptibility and cancer prevention. BBA-Reviews on Cancer, 1766:63-78, 2006.

20. Cavalieri, E. and Rogan, E. Catechol quinones of estrogen in the initiation of breast, prostate, and other human cancers. Ann. NY Acad. Sci., 1089:286-301, 2006.

21. Santen, R., Cavalieri, E., Rogan, E., Russo, J., Guttenplan, J., Ingle, James and Yue, W. Estrogen mediation of breast tumor formation involves estrogen receptor-dependent, as well as independent, genotoxic effects. Ann. NY Acad. Sci., 1155:132-140, 2009.

22. Cavalieri, E.L. and Rogan, E.G. Depurinating estrogen-DNA adducts in the etiology and prevention of breast and other human cancers. Future Oncology, 6:75-91, 2010.

c. National and International Presentations and Invited Presentations*

1. Fliszar, S., Gravel, D. and Cavalieri, E. Ozonation du tétraphényléthylène. C.I.C. Montreal, Canada, June 1965.

2. Fliszar, S., Gravel, D. and Cavalieri, E. Formation de polymères et decomposition du zwitterion de Criegee. A.C.F.A.S., Montreal, Canada, November 1966.

3. Cavalieri, E. and Gravel, D. Clivage photochemique de la trimethyl-4,6,6-dihydro-5,6-pyridone-2(1H). A.C.F.A.S., Quebec, Canada, November 1966.
4. Bilodeau, J., Cavalieri, E. and Gravel, D. Rearrangement de ∗ et , N-bromo lactames par photolyse. A.C.F.A.S., Sherbrooke, Canada, November 1967.

5. Cavalieri, E. and Gravel, D. Mécanisme de degradation photochimique de la trimethyl-4,6,6-dihydro-5,6-pyridone-2(1H). A.C.F.A.S., Sherbrooke, Canada, November 1967.

6. Cavalieri, E. and Calvin, M. Photoaddition of 3,4-benzpyrene to 1-methylcytosine. Fifth International Conference on Photochemistry, IBM Research Center, Yorktown Heights, New York, September 1969.

7. Cavalieri, E. and Calvin, M. Molecular characteristics of some carcinogenic hydrocarbons. Proc. Am. Assoc. Cancer Res. 12, 97 (1971), Chicago, Illinois, April 1971.

8. Cavalieri, E. and Calvin, M. Active sites of the aromatic hydrocarbons with reference to their possible mechanism of carcinogenesis. XXIII IUPAC Congress, Boston, Massachusetts, July 1971.

9. Cavalieri, E. Charge localization in the carbonium ion of the methylbenzanthracenes. A clue to their mechanism of carcinogenesis. Am. Assoc. Cancer Res., Boston, Massachusetts, May 1972.

10. Cavalieri, E. and Auerbach, R. Charge localization in the carbonium ion of benzpyrenes and methylbenzanthracenes. Coupling with nucleophilic compounds. Am. Assoc. Cancer Res., Atlantic City, New Jersey, April 1973.

11. Cavalieri, E. Why the K region epoxides are not the essential reactive intermediates responsible for the carcinogenic activity of the methylbenzanthracenes. 166th Annual Meeting, American Chemical Society, Chicago, Illinois, August 1973.

12. Cavalieri, E. and Roth, R. Charge localization in the carbonium ion of benzpyrenes and methylbenzanthracenes in relation to the mechanism of tumor initiation. NCI Second Annual Carcinogenesis Collaborative Conference 105 (1973), San Antonio, Texas, November 1973.

13. Cavalieri, E. and Garcia, H. Isotope effect on the carcinogenicity of 3-methylcholanthrene by selective deuteration of the 1-methylene group. Am. Assoc. Cancer Res., Houston, Texas, March 1974.

14. Rogan, E.G. and Cavalieri, E. Binding of aromatic hydrocarbons to DNA in purified rat liver nuclei after induction of nuclear aryl hydroxylase activity by methylcholanthrene. XI International Cancer Congress, Florence, Italy, October 1974.

15. Cavalieri, E. Biological evidence for a mechanism of tumor initiation of 3-methylcholanthrene by an isotope effect on its carcinogenicity after selective deuteration of the 1-methylene group. NCI Third Annual Carcinogenesis Conference 117 (1975), Orlando, Florida, February 1975.

16. Cavalieri, E., Rogan, E.G. and Roth, R. One-electron oxidation pathway by polycyclic aromatic hydrocarbons and its implications in the critical binding of tumor initiation. International Symposium: Protein and other adducts to DNA: Their significance to aging, carcinogenesis and radiation biology. Williamsburg, Virginia, May 1975.

17. Rogan, E.G. and Cavalieri, E. Comparison of cytochrome P450 and aryl hydrocarbon hydroxylase levels with binding of aromatic hydrocarbons to DNA in uninduced and induced rat liver nuclei. Am. Assoc. Cancer Res., San Diego, California, May 1975.

18. Cavalieri, E., Roth, R. and Rogan, E.G. Metabolic activation of aromatic hydrocarbons by one-electron oxidation in relation to the mechanism of tumor initiation. Binding to DNA in rat liver nuclei without monooxygenase-catalyzed active oxygen. First International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, October 1975.

19. Cavalieri, E., Roth, R., Mailander, P. and Patil, K. Isotope effect on the carcinogenicity of 3-methylcholanthrene after selective deuteration of the 1-methylene group: A method for disclosing the mechanism of tumor initiation. Second International Conference on Stable Isotopes, Oak Brook, Illinois, October 1975.

20. Cavalieri, E., Roth, R. and Rogan, E.G. Metabolic activation of aromatic hydrocarbons by one-electron oxidation in relation to the mechanism of tumor initiation. NCI Fourth Annual Carcinogenesis Conference 163 (1976), Orlando, Florida, February 1976.

21. Rogan, E., Katomski, P., Roth, R. and Cavalieri, E. Covalent binding of benzo[*a*]pyrene to DNA and RNA at 1, 3 and 6 positions by microsomal activation. Fed. Am. Soc. Exp. Biol., Chicago, Illinois, April 1977.

22. Rogan, E., Roth, R., Cavalieri, E., Katomski, P. and Benderson, J. Binding of benzo[*a*]pyrene at 1, 3 and 6 positions to nucleic acids *in vitro* and *in vivo*. Am. Assoc. Cancer Res., Denver, Colorado, May 1977.

23. Cavalieri, E., Althoff, J. and Grandjean, C. Comparative carcinogenicity of benzo[*a*]pyrene and 3-methylcholanthrene derivatives and parent compounds with implications on the mechanism of tumor initiation. Am. Assoc. Cancer Res., Denver, Colorado, May 1977.

24. Rogan, E., Roth, R. and Cavalieri, E. Enzymology of polycyclic hydrocarbon binding to nucleic acids. Second International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, September 1977.

25. Cavalieri, E., Roth, R., Rogan, E., Althoff, J. and Grandjean, C. Mechanisms of tumor initiation by polycyclic aromatic hydrocarbons. Second International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, September 1977.

* 26. Cavalieri, E. Molecular mechanisms of carcinogenesis by polycyclic aromatic hydrocarbons. Istituto di Richerche Farmacologiche Mario Negri, Milan, Italy, January 1978.

27. Cavalieri, E., Rogan, E. and Saugier, R. An approach to assess the nature of proximate carcinogens for alternant aromatic hydrocarbons. Am. Assoc. Cancer Res., Washington, D.C., May 1978.

28. Roth, R., Grandjean, C. and Cavalieri, E. Comparative carcinogenicity of 7-methylbenz[*a*]-anthracene and some of its derivatives of the methyl group. Am. Assoc. Cancer Res., Washington, D.C., May 1978.

29. Rogan, E., Katomski, P., Roth, R. and Cavalieri, E. Binding of benzo[*a*]pyrene and 3-methyl-cholanthrene to DNA by horseradish peroxidase. Fed. Am. Soc. Exp. Biol., Atlantic City, New Jersey, May 1978.

30. Cavalieri, E., Roth, R. and Rogan, E. Hydroxylation and conjugation at the benzylic carbon atom: Possible mechanism of carcinogenic activation for some methyl-substituted aromatic hydrocarbons. Third International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, October 1978.

31. Rogan, E., Roth, R. and Cavalieri, E. Binding of aromatic hydrocarbons to DNA catalyzed by peroxidase and by ATP. Third International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, October 1978.

32. Rogan, E., Roth, R. and Cavalieri, E. ATP-mediated binding of hydroxymethyl aromatic hydrocarbons to DNA. Am. Assoc. Cancer Res., New Orleans, Louisiana, May 1979.

33. Cavalieri, E., Rogan, E., Kastomski, P. and Sinha, D. Peroxidase-catalyzed binding of hydro-carbons to DNA: A model for activation by one-electron oxidation. Am. Assoc. Cancer Res., New Orleans, Louisiana, May 1979.

34. Cavalieri, E., Sinha, D. and Rogan, E. Rat mammary gland: A possible *in vivo* model of activation of aromatic hydrocarbons by one-electron oxidation. Fourth International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, October 1979.

35. Rogan, E., Roth, R. and Cavalieri, E. Manganic acetate and horseradish peroxidase/hydrogen peroxide: *In vitro* models of activation of aromatic hydrocarbons by one-electron oxidation. Fourth International Symposium on Polynuclear Aromatic Hydrocarbons, Battelle Columbus Laboratories, Columbus, Ohio, October 1979.

36. Rogan, E., Reck, S., Walker, B. and Cavalieri, E. ATP-mediated non-enzymatic covalent binding of hydroxymethyl aromatic hydrocarbons to nucleic acids. Fed. Am. Soc. Exp. Biol., Anaheim, California, April 1980.

37. Cavalieri, E., Rogan, E. and Toth, B. Carcinogenicity of the environmental pollutant cyclopenteno[*cd*]pyrene in mouse skin. Am. Assoc. Cancer Res., San Diego, California, May 1980.

38. Rogan, E., Reck, S. and Cavalieri, E. ATP- and acid-mediated covalent binding of hydroxymethyl aromatic hydrocarbons to DNA. Am. Assoc. Cancer Res., San Diego, California, May 1980.

39. Cavalieri, E., Roth, R., Balasubramanian, R. and Saugier, K. One-electron oxidation of polycyclic aromatic hydrocarbons by manganic acetate as an *in vitro* model for carcinogen activation. Second Chemical Congress of the North American Continent, Las Vegas, Nevada, August 1980.

40. Cavalieri, E., Rogan, R. and Thilly, W. Carcinogenicity, mutagenicity and binding studies of the environmental contaminant cyclopenteno[*cd*]pyrene and some of its derivatives. Fifth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1980.

41. Rogan, E. and Cavalieri, E. Characteristics and biological relevance of the ATP-mediated binding of hydroxymethyl aromatic hydrocarbons to DNA. Fifth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1980.

42. Rogan, E.G. and Cavalieri, E. Horseradish peroxidase/H_2O_2-catalyzed activation of aromatic hydrocarbons. Fed. Am. Soc. Exp. Biol., St. Louis, Missouri, June 1981.

43. Cavalieri, E., Balasubramanian, R. and Rogan, E. Synthesis of stable cation radicals of aromatic hydrocarbons. 28th IUPAC Congress, Vancouver, British Columbia, Canada, August 1981.

44. Susan, A.B., Wiley, J., Duncan, W.P., Cavalieri, E. and Balschi, J. A facile and selective aromatic tritiation of polycyclic hydrocarbons. 28th IUPAC Congress, Vancouver, British Columbia, Canada, August 1981.

* 45. Cavalieri, E. Meccanismi di cancerogenesi di idrocarburi aromatici policiclici. Istituto per lo Studio dei Tumori, Università di Genova, Genova, Italy, September 1981.

* 46. Cavalieri, E. Radicali cationi nella cancerogenesi degli idrocarburi aromatici. Dipartimento di Chimica Generale, Università di Pisa, Pisa, Italy, September 1981.

* 47. Cavalieri, E. Cancerogenicità e mutagenicità del ciclopenta[*cd*]pirene: Un inquinante ambientale di potenziale rischio umano. Istituto di Ricerche Farmacologiche Mario Negri, Milano, Italy, October 1981.

48. Cavalieri, E. and Rogan, E. Carcinogenicity of 3-methylcholanthrene derivatives and cyclopenteno[*cd*]pyrene in the rat mammary gland. Sixth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1981.

* 49. Cavalieri, E. A new model for mammary carcinogenesis. National Toxicology Program, Research Triangle Park, North Carolina, November 1981.

50. Barfknecht, T.R., Brandon, B.M., Kasperbauer, J.L., Cavalieri, E.L. and Thilly, W.G. Activation of cyclopenteno[*cd*]pyrene to mutagens for bacteria and human lymphoblasts. 13th Annual Meeting of the Environmental Mutagen Society, Boston, Massachusetts, February 1982.

51. Cavalieri, E., Rogan, E. and Hakam, A. Horseradish peroxidase/hydrogen peroxide (HRP/H_2O_2)-mediated binding of polycyclic aromatic hydrocarbons (PAH) by one-electron oxidation. Am. Assoc. Cancer Res., St. Louis, Missouri, April 1982.

52. Rogan, E. and Cavalieri, E. Effect of monooxygenase inducers on rat mammary peroxidase and aryl hydrocarbon hydroxylase (AHH). Am. Assoc. Cancer Res., St. Louis, Missouri, April 1982.

53. Cavalieri, E., Rogan, E., Salmasi, S., Munhall, A., Hakam, A. and Balasubramanian, R. Possible activation of polycyclic aromatic hydrocarbons (PAH) by one-electron oxidation in rat mammary carcinogenesis. 13th International Cancer Congress, UICC, Seattle, Washington, September 1982.

54. Rogan, E., Cavalieri, E. and Munhall, A. Syncarcinogenic effect of the environmental pollutants cyclopenta[*cd*]pyrene (CPP) and benzo[*a*]pyrene (BP) in mouse skin. 13th International Cancer Congress, UICC, Seattle, Washington, September 1982.

* 55. Cavalieri, E. Keynote Lecture. One-electron oxidation of aromatic hydrocarbons in chemical and biological systems. Seventh International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1982.

56. Rogan, E., Cavalieri, E., Munhall, A. and Salmasi, S. Synergistic effect of the environmental contaminants cyclopenta[*cd*]pyrene and benzo[*a*]pyrene in mouse skin carcinogenicity. Seventh International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1982.

* 57. Cavalieri, E. Effetto sincancerogenico del ciclopenta[*cd*]pirene e benzo[*a*]pirene: due principali idrocarburi ambientali inquinanti di potenziale rischio umano. Stazione Sperimentale idrocarburi, Milano, Italy, January 1983.

58. Cavalieri, E., Rogan, E., Murray, W. and Walker, B. Mutagenicity of benzylic esters of aromatic hydrocarbons. Am. Assoc. Cancer Res., San Diego, California, May 1983.

59. Cavalieri, E. One-electron and two-electron oxidation in the metabolic activation of aromatic hydrocarbons and other chemicals. Eppley Institute, University of Nebraska Medical Center, Omaha, Nebraska, July 1983.

* 60. Cavalieri, E. One-electron oxidation and two-electron oxidation in the metabolic activation of aromatic hydrocarbons and other chemicals. Seventieth Meeting of Interagency Collaborative Group on Environmental Carcinogenesis, Bethesda, Maryland, August 1983.

* 61. Cavalieri, E. Multiple mechanisms of activation in aromatic hydrocarbon carcinogenesis. Institute of Oncology, Ljubljana, Yugoslavia, September 1983.

* 62. Cavalieri, E. Meccanismi di cancerogenesi di idrocarburi aromatici policiclici. Dipartimento di Chimica Organica, Università di Milano, Milano, Italy, September 1983.

63. Cavalieri, E., Rogan, E., Warner, C. and Bobst, A. Synthesis and characterization of benzo[*a*]pyrene and 6-methylbenzo[*a*]pyrene radical cations. Eighth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1983.

64. Rogan, E. and Cavalieri, E. Adduct analysis in the ATP-mediated binding of 6-hydroxymethylbenzo[*a*]pyrene to DNA. Eighth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1983.

* 65. Cavalieri, E. One-electron oxidation in the carcinogenic activation of aromatic hydrocarbons and other chemicals. Department of Chemistry, Louisiana State University, Baton Rouge, Louisiana, February 1984.

66. Cavalieri, E., Cremonesi, P., Warner, C., Tibbels, S. and Rogan, E. One-electron oxidation of 6-fluorobenzo[*a*]pyrene (BP-6-F) in quinone formation and carcinogenesis. Am. Assoc. Cancer Res., Toronto, Canada, May 1984.

67. Rogan, E., Tibbels, S., Warner, C., Higginbotham, S. and Cavalieri, E. Activation of benzo[*a*]pyrene (BP) and BP-6-CH_3 by one-electron oxidation to form DNA adducts. Am. Assoc. Cancer Res., Toronto, Canada, May 1984.

* 68. Cavalieri, E., Wong, A., Cremonesi, P., Warner, C. and Rogan, E. Metabolic formation of radical cations by an initial one-electron oxidation of benzo[*a*]pyrene. Gordon Research Conference on Drug Metabolism, Plymouth, New Hampshire, July 1984.

* 69. Cavalieri, E.L. One-electron oxidation in aromatic hydrocarbon carcinogenesis. Symposium on Polycyclic Aromatic Hydrocarbons and Cancer, American Chemical Society Annual Meeting, Philadelphia, Pennsylvania, August 1984.

70. Rogan, E., Tibbels, S., Warner, C. and Cavalieri, E. Activation of benzo[a]pyrene by one-electron oxidation to form DNA adducts. Ninth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1984.

71. Cavalieri, E., Wong, A., Cremonesi, P., Warner, C. and Rogan, E. Formation of radical cations by one-electron oxidation in the metabolism of benzo[a]pyrene and 6-fluorobenzo[a]pyrene. Ninth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus, Ohio, October 1984.

72. Cremonesi, P. and Cavalieri, E. Determination of oxidation potentials of aromatic hydrocarbons by cyclic voltammetry. Sixth International Electroanalytical Symposium, 1985 Electroanalytical Symposium 67-70, Chicago, Illinois, May 1985.

73. Wong, A.K.L., Cavalieri, E. and Rogan, E. Organic hydroperoxidedependent microsomal metabolism of benzo[a]pyrene (BP). Amer. Soc. Pharmacol. Exper. Toxicol., Boston, Massachusetts, August 1985.

* 74. Cavalieri, E. Ossidazione monoelettronica nel metabolismo e cancerogenesi di idrocarburi aromatici. Istituto per lo Studio dei Tumori, Università di Genova, Genova, Italy, October 1985.

* 75. Cavalieri, E. Ossidazione monoelettronica nel metabolismo di idrocarburi aromatici. Dipartimento di Chimica Organica, Università di Milano, Milano, Italy, October 1985.

* 76. Cavalieri, E. Masua Honor Lecture. One-electron oxidation in aromatic hydrocarbon carcinogenesis. Dept. of Veterinary Physiology and Pharmacology and The Toxicology Major, Iowa State University, Ames, Iowa, October 1985.

* 77. Cavalieri, E. Masua Honor Lecture. One-electron oxidations in carcinogenesis and metabolism of polycyclic aromatic hydrocarbons. Depts. of Organic and Medicinal Chemistry, University of Kansas, Lawrence, Kansas, November 1985.

78. Cavalieri, E. New mechanistic aspects in the metabolism of benzo[a]pyrene by cytochrome P-450. Eppley Institute, University of Nebraska Medical Center, Omaha, Nebraska, February 1986.

79. Rogan, E., Devanesan, P. and Cavalieri, E. Prostaglandin H synthase (PHS)-catalyzed binding of polycyclic aromatic hydrocarbons to DNA. Amer. Assoc. Cancer Res., Los Angeles, California, May 1986.

80. Cavalieri, E., Rogan, E., Higginbotham, S. and Cremonesi, P. Carcinogenicity in mouse skin and rat mammary gland of benzo[a]pyrene (BP) and 7,12-dimethylbenz[a]anthracene (DMBA) derivatives refuting the diol-epoxide theory. Am. Assoc. Cancer Res., Los Angeles, California, May 1986.

81. Williamson, D.S., Cremonesi, P., Cavalieri, E., Nagel, D.L. Markin, R.S. and Cohen, S.M. Use of multiple quantum filtration for simplification of proton NMR spectra of polycyclic aromatic hydrocarbons. Am. Assoc. Cancer Res., Los Angeles, California, May 1986.

* 82. Cavalieri, E. and Rogan, E. One-electron oxidation in carcinogenesis and metabolism of polycyclic aromatic hydrocarbons. 14th UICC International Cancer Congress, Budapest, August 1986.

83. Cremonesi, P., Cavalieri, E. and Rogan, E. Determination of oxidation potentials of aromatic hydrocarbons (PAH) and other carcinogens by cyclic voltammetry. 14th UICC International Cancer Congress, Budapest, August 1986.

84. Rogan, E., Cavalieri, E., Tibbels, S. and Cremonesi, P. Identification of benzo[*a*]pyrene (BP)-deoxyguanosine (dG) adducts formed by one-electron oxidation. 14th UICC International Cancer Congress, Budapest, August 1986.

85. Cremonesi, P., Cavalieri, E. and Rogan, E. One-electron oxidation of 6-substituted benzo[*a*]pyrenes by manganic acetate. 192nd American Chemical Society National Meeting, Anaheim, California, August 1986.

* 86. Cavalieri, E. Meccanismi di attivazione nella cancerogenesi degli idrocarburi aromatici. Istituto per lo Studio dei Tumori, Università di Genova, Genova, Italy, September 1986.

87. Cavalieri, E. Mechanisms of activation in aromatic hydrocarbon carcinogenesis: A critical evaluation. Department of Pharmaceutical Sciences, University of Nebraska Medical Center, Omaha, Nebraska, October 1986.

88. Cavalieri, E., Devanesan, P., Cremonesi, P., Higginbotham, S. and Rogan, E. Radical cations of polycyclic aromatic hydrocarbons (PAH) in the binding to DNA and protein and in the formation of quinones by cytochrome P-450. Am. Assoc. Cancer Res., Atlanta, Georgia, March 1987.

89. Devanesan, P., Rogan, E. and Cavalieri, E. Radical cation intermediates in the activation of benzo[*a*]pyrene (BP) and 6-fluoro BP (6-FBP) by horseradish peroxidase (HRP) and prostaglandin H synthase (PHS). Am. Assoc. Cancer Res., Atlanta, Georgia, March 1987.

90. Cremonesi, P., Warner, C., Cavalieri, E. and Rogan, E. Radical cation perchlorates of benzo[*a*]pyrene and 6-substituted derivatives: Synthesis and reaction with nucleophiles. 193rd American Chemical Society National Meeting, Denver, Colorado, April 1987.

91. Tibbels, S., Cavalieri, E., Cremonesi, P. and Rogan, E. Formation of benzo[*a*]pyrene-deoxyguanosine (dG) adducts by electrochemical oxidation. 193rd American Chemical Society National Meeting, Denver, Colorado, April 1987.

92. Cavalieri, E., Devanesan, P., Cremonesi, P., Higginbotham, S. and Rogan, E. Cytochrome P-450-mediated metabolism and binding of polycyclic aromatic hydrocarbons via radical cation and epoxide intermediates. Eleventh International Symposium on Polynuclear Aromatic Hydrocarbons, Gaithersburg, Maryland, September 1987.

93. Rogan, E., Devanesan, P. and Cavalieri, E. Horseradish peroxidase- and prostaglandin H synthase-mediated metabolism and binding of benzo[*a*]pyrene and 6-fluorobenzo[*a*]pyrene via radical cation intermediates. Eleventh International Symposium on Polynuclear Aromatic Hydrocarbons, Gaithersburg, Maryland, September 1987.

* 94. Cavalieri, E. Cytochrome P-450 catalyzed one-electron transfer in the metabolism and binding of aromatic substrates. Department of Biochemistry, University of Nebraska Medical Center, February 1988.

* 95. Cavalieri, E. Cytochrome P-450 catalyzed one-electron transfer in the metabolism and binding of aromatic substrates. Department of Chemistry, University of Nebraska, Lincoln, Nebraska, March 1988.

96. Murray, W.J., Markin, R.S., Cavalieri, E. and Rogan, E. A preliminary study correlating ionization potentials of aromatic hydrocarbons with their topological indices. QSAR 88: Third Internatl. Workshop on Quantitative Structure-Activity Relationships in Environmental Toxicology, Knoxville, Tennessee, 1988.

97. Cavalieri, E., Devanesan, P. and Rogan, E. Cytochrome P-450-catalyzed binding of benzo[*a*]pyrene to DNA by one-electron oxidation. Am. Assoc. Cancer Res., New Orleans, Louisiana, May 1989.

98. Rogan, E., Higginbotham, S., Cremonesi, P. and Cavalieri, E. Tumor-initiating activity in mouse skin and carcinogenicity in rat mammary gland of dibenzo[*a*]pyrenes. Am. Assoc. Cancer Res., New Orleans, Louisiana, May 1989.

99. Cavalieri, E., Rogan, E., Devanesan, P., Cremonesi, P. and Higginbotham, S. Binding of benzo[*a*]pyrene to DNA by one-electron oxidation catalyzed by cytochrome P-450 in rat liver microsomes and nuclei. Gordon Research Conference on Oxygen Radicals in Biology, Ventura, California, February 1989.

* 100. Cavalieri, E. One-electron oxidation in the metabolism and binding of benzo[*a*]pyrene catalyzed by cytochrome P-450. Comprehensive Cancer Center and Institute for Toxicology, University of Southern California, Los Angeles, California, February 1989.

101. Cavalieri, E., Devanesan, P., Cremonesi, P., Higginbotham, S. and Rogan, E. Binding of benzo[*a*]pyrene (BP) to DNA by one-electron oxidation catalyzed by cytochrome P-450 in rat liver nuclei. Am. Assoc. Cancer Res., San Francisco, California, May 1989.

102. Rogan, E., Bodell, W., Devanesan, P. and Cavalieri, E. Characterization of benzo[*a*]pyrene (BP)-DNA adducts formed *in vitro* and in mouse skin *in vivo*. Am. Assoc. Cancer Res., San Francisco, California, May 1989.

103. Devanesan, P., Cremonesi, P., Nunnally, J., Rogan, E. and Cavalieri, E. Metabolism and mutagenicity of dibenzo[*a,l*]pyrene (DB[*a,l*]P) and dibenzo[*a,e*]P. Am. Assoc. Cancer Res., San Francisco, California, May 1989.

104. Rogan, E., Bodell, W., Devanesan, P. and Cavalieri, E. Benzo[*a*]pyrene-DNA adducts formed *in vitro* and in mouse skin *in vivo*. Third Nebraska Symposium on Cancer and Smoking-related Diseases, Omaha, Nebraska, 1989.

* 105. Cavalieri, E. (Session Cochairman: Metabolism of PAH). The catalytic role of cytochrome P-450 in the metabolism and binding of PAH. Twelfth International Symposium on Polynuclear Aromatic Hydrocarbons, Gaithersburg, Maryland, September 1989.

106. Cavalieri, E., Devanesan, P., Cremonesi, P., Nunnally, J. and Rogan, E. Metabolism and bacterial mutagenicity of dibenzo[*a,e*]pyrene and the very potent environmental carcinogen dibenzo[*a,l*]pyrene. Twelfth International Symposium on Polynuclear Aromatic Hydrocarbons, Gaithersburg, Maryland, September 1989.

107. Rogan, E., Devanesan, P., Cremonesi, P., Bodell, W., Higginbotham, S. and Cavalieri, E. Benzo[*a*]pyrene-DNA adducts formed by rat liver microsomes and nuclei *in vitro* and in mouse skin *in vivo*. Twelfth International Symposium on Polynuclear Aromatic Hydrocarbons, Gaithersburg, Maryland, September 1989.

* 108. Cavalieri, E.L. and Rogan, E.G. Radical cations in aromatic hydrocarbon carcinogenesis. Free Radicals and Cancer Meeting, Tubingen, Federal Republic of Germany, December 1989.

* 109. Cavalieri, E. The catalytic role of cytochrome P-450 in the metabolism and binding of organic substrates: A unified view developed from studies with benzo[*a*]pyrene. Depts. of Biomedical Sciences and Pharmacology, Creighton University School of Medicine, Omaha, Nebraska, February 1990.

110. Cavalieri, E., RamaKrishna, N.V.S., Cremonesi, P., Todorovic, R. and Rogan, E.G. Mechanism of oxygen transfer in cytochrome P-450-catalyzed formation of 3-hydroxy-benzo[*a*]pyrene (3-OHBP) from BP. Am. Assoc. Cancer Res., Washington, D.C., May 1990.

111. Rogan, E., Todorovic, R., Cavalieri, E., Devanesan, P., Park, S. and Gelboin, H. Regiospecific inhibition of the metabolism of benzo[*a*]pyrene (BP) by the monoclonal antibody (MAb) 1-68-11 to male rat liver cytochrome P-450 2c/RLM5. Am. Assoc. Cancer Res., Washington, D.C., May 1990.

112. Dolnikowski, G.G., Cerny, R.L., Cavalieri, E.L. and Gross, M.L. MS/MS of PAH adducts with pyridine and guanine. 38th Amer. Soc. Mass Spectrom. Conf., Tucson, Arizona, 1990.

113. Gross, M.L., Cerny, R.L., Cavalieri, E., Rogan, E. and Bateman, R. Applications of a new tandem mass spectrometer to nucleoside and nucleotide problems. Invited lecture at the 200th ACS National Meeting, Symposium on The Human Genome Initiative: New Challenges in Analytical Chemistry. Washington, D.C., 1990.

114. Rogan, E., Higginbotham, S., RamaKrishna, N. and Cavalieri, E. High tumorigenicity of the environmental dibenzo[*a,1*]pyrene (DB[*a,1*]P) compared to benzo[*a*]pyrene (BP) and 7,12-dimethylbenz[*a*]anthracene (DMBA) in mouse skin and rat mammary gland. Am. Assoc. Cancer Res., Houston, Texas, May 1991.

115. Devanesan, P., RamaKrishna, N., Cavalieri, E., Rogan, E., Jeong, H., Jankowiak, R. and Small, G. Predominant formation of depurinated benzo[*a*]pyrene (BP)-DNA adducts by horseradish peroxidase (HRP)- and cytochrome P-450-catalyzed one-electron oxidation. Am. Assoc. Cancer Res., Houston, Texas, May 1991.

116. RamaKrishna, N.V.S., Cavalieri, E. and Rogan, E. DNA adducts of 7,12-dimethylbenz[*a*]-anthracene (DMBA) formed by electrochemical oxidation and horseradish peroxidase (HRP). Am. Assoc. Cancer Res., Houston, Texas, May 1991.

117. Cavalieri, E.L., Rogan, E.G., RamaKrishna, N.V.S. and Devanesan, P.D. (Session Cochairman: PAH-DNA adducts) Mechanisms of BP and DMBA activation: Qualitative aspects of the stable and labile DNA adducts obtained from radical cations and diol epoxides. Thirteenth International Symposium on Polynuclear Aromatic Hydrocarbons, Bordeaux, France, October 1991.

118. Rogan, E.G., Cavalieri, E.L., RamaKrishna, N.V.S. and Devanesan, P.D. Mechanisms of BP and DMBA activation: Quantitative aspects of the stable and labile DNA adducts obtained from radical cations and diol epoxides. Thirteenth International Symposium on Polynuclear Aromatic Hydrocarbons, Bordeaux, France, October 1991.

119. Cavalieri, E.L., Rogan, E.G., Murray, W.J. and RamaKrishna, N.V.S. Mechanistic aspects of benzo[*a*]pyrene metabolism. Thirteenth International Symposium on Polynuclear Aromatic Hydrocarbons, Bordeaux, France, October 1991.

* 120. Cavalieri, E. Radical cations in aromatic hydrocarbon carcinogenesis. Department of Chemistry, University of Nebraska-Lincoln, Lincoln, Nebraska, November 1991.

* 121. Cavalieri, E. Mechanisms of metabolic activation of polycyclic aromatic hydrocarbons. Water Center, University of Nebraska-Lincoln, Lincoln, Nebraska, February 1992.

122. Rogan, E.G., RamaKrishna, N.V.S., Devanesan, P.D., Padmavathi, N.S. and Cavalieri, E.L. Formation of 7,12-dimethylbenz[*a*]anthracene (DMBA)-DNA adducts in mouse skin by one-electron oxidation. Am. Assoc. Cancer Res., San Diego, California, May 1992.

123. Devanesan, P., RamaKrishna, N.V.S., Padmavathi, N.S., Rogan, E. and Cavalieri, E. Formation of benzo[*a*]pyrene (BP)-DNA adducts in mouse skin by one-electron oxidation. Am. Assoc. Cancer Res., San Diego, California, May 1992.

124. RamaKrishna, N.V.S., Higginbotham, S., Padmavathi, N.S., Johansson, S., Rogan, E. and Cavalieri, E. The extremely potent carcinogen dibenzo[*a,l*]pyrene (DBP): Tumorigenicity in mouse skin and synthesis of nucleoside adducts. Am. Assoc. Cancer Res., San Diego, California, May 1992.

125. Dwivedy, I., Devanesan, P., Rogan, E. and Cavalieri, E. Synthesis of 2,3- and 3,4-estrogen and comparison of DNA adducts formed by the and horseradish peroxidase (HRP)-activated catechol estrogens (CE). Am. Assoc. Cancer Res., San Diego, California, May 1992.

* 126. Cavalieri, E. and Rogan, E. Metabolic activation of the potent carcinogens benzo[*a*]pyrene and dimethylbenz[*a*]anthracene by one-electron oxidation. International Society for Free Radical Research, VI Biennial Meeting, Torino, Italy, June 1992.

127. Augusto, O., Netto, L.E.S., RamaKrishna, N.V.S., Kolar, C., Cavalieri, E.L., Rogan, E.G. and Lawson, T.A. Evidence for *in vivo* DNA alkylation by methyl radicals. Identification of C8-methylguanine in the hydrolysates of DNA from rats administered 1,2-dimethylhydrazine. International Society for Free Radical Research, VI Biennial Meeting, Torino, Italy, June 1992.

128. Murray, W.J. and Cavalieri, E.L. Charge distribution in the neutral molecule and radical cation of PAH using the electrostatic potential (ESP) augmented MNDO and AM1 methods. QSAR 92, Fifth International Workshop on QSAR in Environmental Toxicology, Duluth, Minnesota, July 1992.

* 129. Cavalieri, E. The approach to understanding aromatic hydrocarbon carcinogenesis. Department of Biochemistry and Molecular Biology, University of Nebraska Medical Center, Omaha, Nebraska, November 1992.

* 130. Cavalieri, E. The approach to understanding aromatic hydrocarbon carcinogenesis. The role of radical cations and diol epoxides in metabolic activation. Invited speaker at the 16th Annual Interdisciplinary Cancer Research Workshop, University of New Orleans, March 5, 1993.

* 131. Cavalieri, E. and Rogan, E. Identification and quantitation of aromatic hydrocarbon-DNA depurination adducts formed *in vitro* and *in vivo*. Environmental and Molecular Mutagenesis, Environmental Mutagen Society Annual Meeting, Norfolk, Virginia, April 17-22, 1993.

* 132. Cavalieri, E. The approach to understanding aromatic hydrocarbon carcinogenesis. The role of radical cations and diol epoxides in metabolic activation. Department of Biological Chemistry, The Milton S. Hershey Medical Center, Hershey, Pennsylvania, April 26, 1993.

133. Devanesan, P., Todorovic, R., Rogan, E. and Cavalieri, E. ^{32}P-Postlabeling analysis of 6-fluorobenzo[*a*]pyrene (6-FBP) and 6-methylbenzo[*a*]pyrene (6-CH_3BP)-DNA adducts. Am. Assoc. Cancer Res., Orlando, Florida, May 1993.

134. Cavalieri, E., RamaKrishna, N.V.S., Li, K.-M. and Rogan, E. Adducts of 6-methylbenzo[*a*]-pyrene (6-CH_3BP) and 6-fluorobenzo[*a*]pyrene (6-FBP) to deoxyribonucleosides formed by electrochemical oxidation. Am. Assoc. Cancer Res., Orlando, Florida, May 1993.

135. Rogan, E., Higginbotham, S., RamaKrishna, N.V.S., Devanesan, P. and Cavalieri, E. Binding of benzo[*a*]pyrene (BP) to free and membrane-bound DNA in rat liver nuclei. Am. Assoc. Cancer Res., Orlando, Florida, May 1993.

* 136. Cavalieri, E. The approach to understanding aromatic hydrocarbon carcinogenesis. The role of radical cations and diol epoxides in metabolic activation. Institute of Toxicology, University of Mainz, Mainz, Germany, June 18, 1993.

137. Cavalieri, E., Higginbotham, S. and Rogan, E. Dibenzo[*a,l*]pyrene: The most potent carcinogenic aromatic hydrocarbon. 14th International Polycyclic Aromatic Compounds Symposium, Osage Beach, Missouri, September 8-11, 1993.

138. Casale, G.P., Todorovic, R. RamaKrishna, N.V.S., Rogan, E. and Cavalieri, E. Detection of 7-(benzo[*a*]pyren-6-yl)guanine by monoclonal antibodies. 14th International Polycyclic Aromatic Compounds Symposium, Osage Beach, Missouri, September 8-11, 1993.

139. Li, K.-M., RamaKrishna, N.V.S., Padmavathi, N.S., Rogan, E.G., Cavalieri, E.L. Synthesis and structure determination of the adducts of dibenzo[*a,l*]pyrene(DBP) diol epoxides and deoxyadenosine or deoxyguanosine. 14th International Polycyclic Aromatic Compounds Symposium, Osage Beach, Missouri, September 8-11, 1993.

140. Devanesan, P., Todorovic, R., Rogan, E., Cavalieri, E. Effect of 7-hydroxybenzo[*a*]pyrene (7-OHBP) on BP metabolism and formation of BP-DNA adducts. 14th International Polycyclic Aromatic Compounds Symposium, Osage Beach, Missouri, September 8-11, 1993.

141. Rogan, E., Higginbotham, S., Devanesan, P., Cavalieri, E. Covalent binding of BP to free and membrane-bound DNA in isolated liver nuclei from 3-methylcholanthrene-induced rats. 14th International Polycyclic Aromatic Compounds Symposium, Osage Beach, Missouri, September 8-11, 1993.

142. Cavalieri, E., Devanesan, P., Mulder, P., RamaKrishna, N.V.S., Rogan, E. Metabolism of 1-fluorobenzo[*a*]pyrene (1-FBP) and 3-FBP by cytochrome P-450 and horseradish peroxidase (HRP). 14th International Polycyclic Aromatic Compounds Symposium, Osage Beach, Missouri, September 8-11, 1993.

* 143. Cavalieri, E. The central role of radical cations in the metabolism and DNA binding of aromatic hydrocarbons. Department of Chemistry, University of Cincinnati, Cincinnati, Ohio, March 4, 1994.

144. Li, K.-M., Todorovic, R., Rogan, E.G. and Cavalieri, E.L. Determination of dibenzo[*a,l*]-pyrene-DNA depurination adducts formed in horseradish peroxidase- and microsome-catalyzed reactions. Amer. Assoc. Cancer Res., San Francisco, CA, April 1994.

145. Chakravarti, D., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. Dibenzo[*a,l*]pyrene-initiated mouse skin tumors contain a codon 61 mutation in c-H-*ras* gene. Amer. Assoc. Cancer Res., San Francisco, CA, April 1994.

146. Devanesan, P., Li, K.-M., Rogan, E.G. and Cavalieri, E.L. DNA adducts of the potent carcinogen 3-methylcholanthrene. Amer. Assoc. Cancer Res., San Francisco, CA, April 1994.

147. Stack, D.E., Cremonesi, P., Rogan, E.G. and Cavalieri, E.L. Radical cations of benzo[*a*]pyrene: synthesis and reaction with nucleosides. Amer. Assoc. Cancer Res., San Francisco, CA, April 1994.

148. Todorovic, R., Casale, G.P., RamaKrishna, N.V.S., Rogan, E. and Cavalieri, E. Production of monoclonal antibodies specific for 7-(benzo[*a*]pyren-6-yl)guanine and their use in developing

a competitive enzyme-linked immunosorbent assay. Amer. Assoc. Cancer Res., San Francisco, CA, April 1994.

149. Li, K.-M., Todorovic, R., Rogan, E.G. and Cavalieri, E.L. Dibenzo[*a,l*]pyrene (DB[*a,l*]P)- and DB[*a,l*]P-11,12-dihydrodiol-DNA adducts formed in reactions catalyzed by rat liver microsomes. Environmental Mutagen Society Annual Meeting, Portland, OR, May 7-12, 1994.

150. Chakravarti, D., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. A codon 61 mutation (CAA to CTA) in C-H-*ras* gene in mouse skin tumors initiated by dibenzo[*a,l*]pyrene (DB[*a,l*]P) or its 11,12-dihydrodiol. Environmental Mutagen Society Annual Meeting, Portland, OR, May 7-12, 1994.

151. Gross, M.L., Cerny, R.L., Wellemans, J., George, M., Cavalieri, E. and Taylor, J. Tandem mass spectrometry for determining mechanism of carcinogenesis. Third International Symposium on Mass Spectrometry in the Health and Life Sciences, San Francisco, CA, September 13-18, 1994.

* 152. Cavalieri, E.L., Rogan, E.G. The central role of radical cations in metabolic activation of polycyclic aromatic hydrocarbons. Sixth North American International Society for the Study of Xenobiotics Meeting, Raleigh, NC, October 23-27, 1994.

153. Stack, D.E., Cremonesi, P., Hanson, A., Rogan, E.G., Cavalieri, E.L. Radical cation of benzo[*a*]pyrene and 6-substituted derivatives: Synthesis and reaction with nucleophiles and DNA. Sixth North American International Society for the Study of Xenobiotics Meeting, Raleigh, NC, October 23-27, 1994.

154. Cavalieri, E.L., Devanesan, P.D., Mulder, P.P.J., Rogan, E.G. Metabolism of benzo[*a*]pyrene by cytochrome P-450: Mechanism of oxygen transfer to benzo[*a*]pyrene radical cation. Sixth North American International Society for the Study of Xenobiotics Meeting, Raleigh, NC, October 23-27, 1994.

155. Li, K.-M., Rogan, E.G., Cavalieri, E.L. Dibenzo[*a,l*]pyrene-N3 adenine adduct formed by one-electron oxidation: synthesis and detection *in vitro*. Amer. Assoc. Cancer Res., Toronto, Ontario, Canada, March 1995.

156. Li, K.-M., Rogan, E.G., Cavalieri, E.L. Adducts formed by reaction of (±)-*syn*- and (±)-*anti*-dibenzo[*a,l*]pyrene diol epoxides with DNA. Amer. Assoc. Cancer Res., Toronto, Ontario, Canada, March 1995.

157. Devanesan, P.D., Rogan, E.G., Cavalieri, E.L. Identification of stable DNA adducts of dibenzo[*a,l*]pyrene. Amer. Assoc. Cancer Res., Toronto, Ontario, Canada, March 1995.

158. Chakravarti, D., Rogan, E., Cavalieri, E. Mapping DNA sequence-specific aromatic hydrocarbon reaction sites in a 231 bp EcoRI-NheI fragment of plasmid pBR322. Environmental Mutagen Society Annual Meeting, St. Louis, MO, March 12-16, 1995.

159. Byun, J., Vidavsky, I., Gross, M.L., Mulder, P., Li, K.-M., Cavalieri, E. Tandem MS/MS for determining structural isomers of PAH-DNA adducts. American Society for Mass Spectrometry, Atlanta, GA, May 21-26, 1995.

* 160. Cavalieri, E. The mechanism of tumor initiation by metabolic activation of catechol estrogens. Gordon Research Conference on Hormonal Carcinogenesis, New London, NH, August 1995.

161. Gross, M., Cavalieri, E., Rogan, E. Tandem mass spectrometry of modified DNA bases and nucleotides. FDA Mass Spectrometry Symposium, Washington, D.C., September 12-13, 1995.

162. Cavalieri, E., Rogan, E. (Session Cochairman: DNA Adducts: Mechanistic Studies) The primary role of apurinic sites in tumor initiation. 15th International Symposium on Polycyclic Aromatic Compounds, Belgirate, Italy, September 1995.

163. Casale, G., Rogan, E., Stack, D., Devanesan, P., Cavalieri, E. Characteristics of a monoclonal antibody (MAb) with high specific affinity for the depurinating adduct 7-(benzo[*a*]pyren-6-yl)guanine (BP-6-N7Gua): A new dosimeter of DNA damage by benzo[*a*]pyrene (BP). 15th International Symposium on Polycyclic Aromatic Compounds, Belgirate, Italy, September 1995.

* 164. Cavalieri, E. Estrogen-3,4-quinones: Endogenous tumor initiators of breast and other human cancers. NCI Workshop "Hormones, Hormone Metabolism and Breast Cancer", New Orleans, LA, September 1995.

* 165. Cavalieri, E. Estrogen-3,4-quinones: Endogenous tumor initiators of breast and other human cancers. Veterans Administration Hospital, Omaha, NE, November, 1995.

* 166. Cavalieri, E. Molecular origin of cancer: Endogenous tumor initiation by estrogen-3,4-quinones. University of Nebraska Medical Center, Cancer Center Grand Rounds, Omaha, NE, November, 1995.

167. Chen, L., Devanesan, P.D., Rogan, E.G., Cavalieri, E.L. Characterization of the 7-H-dibenzo[*c,g*]carbazole (DBC)-DNA adducts formed *in vitro*. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

168. Li, K.-M., Todorovic, R., Devanesan, P., Rogan, E. G., Cavalieri, E. L. Detection of 3-methyl-cholanthrene-DNA adducts formed *in vitro*. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

169. Todorovic, R., Li, K.-M., Rogan, E.G., Cavalieri, E.L. Identification and quantitation of DNA adducts of benzo[*a*]pyrene (BP), 7,12-dimethylbenz[*a*]anthracene (DMBA) and dibenzo[*a,l*]-pyrene (DB[*a,l*]P) formed in rat mammary glands. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

170. Devanesan, P.D., Ariese, F., Small, G.J., Rogan, E.G. and Cavalieri, E.L. Isolation and identification of stable DNA adducts of dibenzo[*a,l*]pyrene. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

171. Jan, S.-T., Devanesan, P.D., Rogan, E.G., Cavalieri, E. L. DNA damage caused by hexestrol, a carcinogenic nonsteroidal estrogen. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

172. Stack, D.E., Devanesan, P.D., Todorovic, R., Rogan, E.G., Cavalieri, E.L. Genotoxic mechanisms of catechol estrogens: Depurinating adducts and tumor initiation. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

173. Chakravarti, D., Higginbotham, S., Rogan, E.G., Cavalieri, E.L. Detection of preneoplastic oncogenic mutations in PAH-treated mouse skin. Amer. Assoc. Cancer Res., Washington, D.C., April 1996.

174. Ramanathan, R., Byun, J., Hsu, F., Gross, M., Cao, K., Cavalieri, E. Structure elucidation of glutathione and related thiols by FAB, ESI and NICI mass spectrometry. American Society for Mass Spectrometry Conference, Portland, OR, May 13-17, 1996.

175. Byun, J., Ramanathan, R., Gross, M., Chen, L., Cavalieri, E. Detection and characterization of DNA adducts of DBC and MDBC via FAB and ESI mass spectrometry. American Society for Mass Spectrometry Conference, Portland, OR, May 13-17, 1996.

176. Ramanathan, R., Byun, J., Gooden, J., Gross, M., Stack, D., Cavalieri, E. Quantitation and structural elucidation of *in vitro* and *in vivo* formed estrogen-DNA adducts. American Society for Mass Spectrometry Conference, Portland, OR, May 13-17, 1996.

177. Gooden, J., Gross, M., Chen, L., Cavalieri, E. PAH-Modified DNA adduct isomer distinction using Post Source Decay MALDI-TOF. American Society for Mass Spectrometry Conference, Portland, OR, May 13-17, 1996.

178. Cai, Z., Cerny, R.L., Rogan, E.G., Cavalieri, E.L. The determination of catechol estrogen levels in breast tissue. American Society for Mass Spectrometry, Portland, OR, May 13-17, 1996.

* 179. Cavalieri, E. Tumor initiation by endogenous estrogen-3,4-quinones. NCI Symposium "Estrogens as endogenous procarcinogens: A molecular origin of mutation and cancer?", Washington, D.C., May 1996.

* 180. Cavalieri, E. Molecular origin of cancer: From aromatic hydrocarbons to catechol estrogen. NIEHS, Research Triangle Park, NC, June 1996.

181. Gross, M., Cavalieri, E., Rogan, E. Mass spectrometry for modified DNA. NATO Conference, Sicily, Italy, July 8-13, 1996.

182. Gross, M., Cavalieri, E., Rogan, E. Tandem mass spectrometry of modified DNA bases and nucleotides. American Chemical Society Conference, Division of Chemical Toxicology, Orlando, Florida, August 25-30, 1996.

* 183. Cavalieri, E.L., Rogan, E.G. Role of aromatic hydrocarbons in disclosing how catechol estrogens initiate cancer. Eighth International Catecholamine Symposium, Asilomar, CA, October 13-18, 1996.

184. Stack, D.E., Cavalieri, E.L., Rogan, E.G. Catechol estrogens as procarcinogens: Depurinating adducts and tumor initiation. (Stack, D.E., invited speaker) Eighth International Catecholamine Symposium, Asilomar, CA, October 13-18, 1996.

185. Cavalieri, E. Molecular origin of cancer. History of Medicine Club, Omaha, NE, November 5, 1996.

186. Cavalieri, E. Origin of cancer at the molecular level. Lions Club, Omaha, NE, December 17, 1996.

187. Cavalieri, E. The origin of human cancer. Rotary Club, Omaha, NE, January 22, 1997.

* 188. Cavalieri, E. Catechol estrogen-3,4-quinones: Initiators of human cancer. Department of Pharmacology, University of Nebraska Medical Center, Omaha, NE, February 7, 1997.

* 189. Cavalieri, E. The role of catechol estrogens and apurinic sites in the initiation of human cancer. Department of Biomedical Sciences, Creighton University, Omaha, NE, March 4, 1997.

190. Cavalieri, E. The origin of human cancer. West Side Kiwanis Club, Omaha, NE, April 2, 1997.

* 191. Cavalieri, E. Mechanisms of tumor initiation: From aromatic hydrocarbons to catechol estrogen quinones. NIEHS seminar series, University of Texas Medical Branch, Galveston, TX, April 9, 1997.

192. Cao, K., Cavalieri, E.L. and Rogan, E.G. Horseradish peroxidase-, lactoperoxidase- and rat liver microsome- catalyzed binding of catechol estrogens to glutathione. Amer. Assoc. Cancer Res., San Diego, California, April 1997.

193. Li, K.-M., Todorovic, R., Cavalieri, E.L., Rogan, E.G., Jankowiak, R. and Small, G. Depurinating DNA adducts detected in mouse skin treated with dibenzo[*a,l*]pyrene (DB[*a,l*]P), DB[*a,l*]P-11,12-dihydrodiol, (±)-anti-DB[*a,l*]P diol epoxide (DE) or (±)-syn-DB[*a,l*]PDE. Amer. Assoc. Cancer Res., San Diego, California, April 1997.

194. Li, K.-M., Cavalieri, E.L., Rogan, E.G., George, M., Gross, M. and Seidel, A. Structure elucidation of the eight diastereomers formed by reaction of dibenzo[*a,l*]pyrene diol epoxide DB[*a,l*]PDE with deoxyadenosine (dA). Amer. Assoc. Cancer Res., San Diego, California, April 1997.

195. Todorovic, R., Devanesan, P.D., Li, K.-M., Rogan, E.G. and Cavalieri, E.L. Stable dibenzo[*a,l*]pyrene-DNA adducts formed in mouse skin. Amer. Assoc. Cancer Res., San Diego, California, April 1997.

196. Devanesan, P.D., Chen, L., Gooden, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. Identification of 7-methyldibenzo[*c,g*]carbazole-DNA adducts formed *in vitro*. Amer. Assoc. Cancer Res., San Diego, California, April 1997.

197. Hanson, A.A., Cavalieri, E.L. and Rogan, E.G. Synthesis of aromatic hydrocarbon-nucleoside adducts by iodine oxidation. Amer. Assoc. Cancer Res., San Diego, California, April 1997.

198. Ramanathan, R., Cao, K., Stack, D., Cavalieri, E.L. and Gross, M.L. Identification and characterization of steroid modified DNA and glutathione adducts. American Society of Mass Spectrometry Conference, Palm Springs, CA, June 1-5, 1997.

199. Gooden, J., Gross, M., Stack, D., Chakravarti, D., Cavalieri, E. and Rogan, E. MALDI-TOF analysis of modified oligonucleotides. American Society for Mass Spectrometry Conference, Palm Springs, CA, June 1-5, 1997.

200. Rogan, E., Stack, D., Cerny, R., Edney, J., Johannson, S., Higginbotham S. and Cavalieri, E. GC/MS analysis of catechol estrogen metabolites in breast tissue samples. The Dept. of Defense Breast Cancer Res. Prog. Era of Hope Meeting, Washington, DC, Oct. 31-Nov. 4, 1997.

* 201. Cavalieri, E. The role of catechol estrogens and apurinic sites in the initiation of human cancer. Department of Chemistry, University of Montreal, Montreal, Canada, Nov. 29, 1997.

202. Cavalieri, E. The role of catechol estrogens and apurinic sites in the initiation of human cancer. Wistar Institute, Philadelphia, PA, Dec. 9, 1997.

* 203. Cavalieri, E. Catechol estrogen-3,4-quinones and apurinic sites in cancer initiation. International Symposium on Estrogens as Endogenous Carcinogens in the Breast and Prostate. Westfields International Conference Center, Chantilly, VA, March 16-17, 1998.

* 204. Cavalieri, E. Catechol estrogen-3,4-quinones and apurinic sites in the initiation of cancer. Invited speaker, Department of Toxicology, North Carolina State University, Raleigh, NC, March 25, 1998.

* 205. Cavalieri, E. Molecular origin of cancer: Catechols → Semiquinones → Quinones. Invited speaker, Mayo Clinic, Rochester, MN, April 17, 1998.

206. Hanson, A.A., Rogan, E.G., Cavalieri, E.L. Identification and quantitation of 6-methyl-benzo[*a*]pyrene (6-CH_3BP)-DNA stable and depurinating adducts formed *in vitro* and *in vivo*. Amer. Assoc. Cancer Res., New Orleans, Louisiana, April, 1998.

207. Li, K.-M., Devanesan, P.D., Rogan, E.G. and Cavalieri, E.L. Formation of the depurinating 4-hydroxyestradiol (4-OHE_2)-1-N7Gua and 4-OHE_2-1-N3Ade adducts by reaction of E_2-3,4-quinone with DNA. Amer. Assoc. Cancer Res., New Orleans, Louisiana, April, 1998.

208. Devanesan, P.D., Li, K.-M., Higginbotham, S., Harvey, R.G., Rogan, E.G. and Cavalieri, E.L. Identification of DNA depurinating adducts of the potent carcinogen, 5-methylchrysene (5-MeC). Amer. Assoc. Cancer Res., New Orleans, Louisiana, April, 1998.

209. Todorovic, R., Devanesan, P., Zhao, J., Gross, M., Higginbotham, S., Rogan, E. and Cavalieri, E. Determination of catechol estrogen-DNA and thioether adducts in the urine of Syrian

golden hamsters treated with 4-hydroxyestradiol. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

210. Devanesan, P., Todorovic, R., Zhao, J., Higginbotham, S., Gross, M., Rogan, E. and Cavalieri, E. Formation of catechol estrogen adducts in kidneys of male hamsters treated with 4-hydroxyestradiol. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

211. Yue, W., Todorovic, R., Wang, J.-P., Santen, R.J. and Cavalieri, E.L. Aromatization of androgens and production of genotoxic estrogen metabolites in aromatase-transfected MCF-7 human breast cancer cells. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

212. Balu, N., Li, K.-M., Rogan, E. and Cavalieri, E. A unifying mechanism in the reaction of catechol-catecholamine- and catechol estrogen- with nucleophilic sites in DNA. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

213. Li, K.-M., Liang, W., Devanesan, P., Rogan, E. and Cavalieri, E. Relative stability of 4-hydroxyestradiol-1-N7dG compared to other depurinating nucleoside adducts. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

214. Chakravarti, D., Mailander, P., Higginbotham, S., Cavalieri, E. and Rogan, E. Relationship of depurinating adducts with H-*ras* oncogenic mutations in mouse skin papillomas induced by benzo[*a*]pyrene, benzo[*a*]pyrene-7,8-dihydrodiol and 6-methylbenzo[*a*]pyrene. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

215. Chakravarti, D., Mailander, P., Higginbotham, S., Cavalieri, E. and Rogan, E. Dibenzo[*a,l*]pyrene induction of single-strand mutations in early preneoplastic mouse skin, followed by multiple transient clonal expansions and regressions of H-*ras* oncogenic mutation-bearing cells. Amer. Assoc. Cancer Res., Philadelphia, PA, April, 1999.

* 216. Cavalieri, E. Catechol estrogen-3,4-quinones as endogenous initiators of cancer. Symposium on Estrogen Metabolism and Carcinogenicity, Annual Meeting, American Society for Pharmacology and Experimental Therapeutics, Washington, D.C., April 18, 1999.

* 217. Cavalieri, E.L. Molecular origin of cancer: From PAHs to catechol estrogen quinones. Keynote speaker at the International symposium "Natural and Synthetic Organic Compounds in the Environment. Phytoestrogens, PAHs and Veterinary Drugs", Golden Tulip Center Leeuwenhorst, Noordwijkerhout, the Netherlands, March 15-16, 2000.

218. Badawi, A.F., Cavalieri, E.L. and Rogan, E.G. Effect of chlorinated hydrocarbons on cytochrome P450 (CYP) 1A2 and 1B1 mRNA transcripts and the 2- and 4- hydroxylation of estradiol in female Sprague-Dawley rats. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

219. Chakravarti, D., Mailander, P., Cavalieri, E.L. and Rogan, E.G. Estrogen-DNA damage in mouse skin H-*ras* gene is mutated by error-prone repair. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

220. Chakravarti, D., Mailander, P., Cavalieri, E.L. and Rogan, E.G. Transforming and non-transforming mutations in dibenzo[*al*]pyrene-initiated and TPA-promoted papillomas. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

221. Chapman, K, Zhang, L., Gross, M., Cavalieri, E.L. and Rogan, E.G. Identification of depurinating and stable DNA adducts in human breast cancer cell lines following treatment with 0.2nM estradiol (E_2) or 4-OHE_2. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

222. Crandall, L., Rogan, E.G. and Cavalieri, E.L. Oxidation of catechol estrogens mediated by metal ions. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

223. Devanesan, P., Rogan, E.G., Cavalieri, E.L., Bocchinfuso, W., Korach, K. and Santen, R.J. Catechol estrogen metabolites and conjugates in hyperplastic mammary tissue from estrogen receptor α knock-out (ERKO)/Wnt-1 mice. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

224. Li, K.-M., Casale, G., Rogan, E.G. and Cavalieri, E.L. Synthesis of *N*-acetyl-lysine adducts with the quinones of 2-hydroxyestradiol and 4-hydroxyestradiol. Amer. Asoc. Cancer Res., San Francisco, CA, April, 2000.

225. Li, K.-M., Zhao, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. A unifying mechanism in the reaction of metabolically-activated catechol and dopamine with DNA. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

226. Todorovic, R., Devanesan, P., Higginbotham, S., Zhao, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. Metabolic response to treatment of Syrian Golden hamsters with 4-hydroxyestradiol: Analysis of estrogenic compounds in urine. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

227. Todorovic, R., Li, K.-M., Higginbotham, S., Zhao, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. Metabolic response to treatment of ACI rat mammary gland with 4-hydroxyestradiol or estradiol-3,4-quinone. Amer. Assoc. Cancer Res., San Francisco, CA, April, 2000.

* 228. Cavalieri, E.L. Molecular origin of cancer: From polycyclic aromatic hydrocarbons to catechol estrogen quinones. Sidney Kimmel Cancer Center, San Diego, CA April 6, 2000.

* 229. Cavalieri, E.L. Origine moléculaire du cancer: des hydrocarbures polycycliques aromatiques aux quinones des catéchols oestrogènes. Université de Paris 7. Institut de Topologie et de Dynamique des Systèmes, Paris, France, June 8, 2000.

* 230. Cavalieri, E.L. Quinones des catéchols oestrogènes: un mécanisme unificateur de l'initiation du cancer. Hôspital du Kremlin Bicêtre, Paris, France, June 20, 2000.

* 231. Cavalieri, E.L. Catechol estrogen quinones: A unifying mechanism of tumor initiation. Fox Chase Cancer Center, Philadelphia, PA, August 16, 2000.

232. Cavalieri, E.L., Devanesan, P.D., Bosland, M.C., and Rogan, E.G. Estrogen metabolites and conjugates: Potential biomarkers of prostate cancer susceptibility. Amer. Assoc. Cancer Res., New Orleans, LA, March, 2001.

233. Chakravarti, D., Mailander, P.C., Cavalieri, E.L., and Rogan, E.G. A mixture of dibenzo*[a,l*]pyrene and anti-dibenzo[*a,l*]pyrene diol epoxide induces fewer H-*ras* codon 61 mutations than dibenzo[*a,l*]pyrene alone in Sencar mouse skin. Amer. Assoc. Cancer Res., New Orleans, LA, March, 2001.

234. Badawi, A.F., Devanesan, P.D., Edney, J.A., West, W.W., Higginbotham, S.M., Rogan, E.G. and Cavalieri, E.L. Estrogen metabolites and conjugates: Biomarkers of susceptibility to human breast cancer. Amer. Assoc. Cancer Res., New Orleans, LA, March, 2001.

235. Rogan, E.G., Higginbotham, S.M., and Cavalieri, E.L. Greater oxidation of catechol estrogens to quinones in the hamster kidney target tissue for carcinogenesis than in the refractory liver. Amer. Assoc. Cancer Res., New Orleans, LA, March, 2001.

236. Chakravarti, D., Badawi, A.F., Li, K.M., Mailander, P., Cavalieri, E.L., and Rogan, E.G. How well do measurements of depurinating adducts and abasic sites report the level of depurination induced by chemical carcinogens? Amer. Assoc. Cancer Res. Supplement, New Orleans, LA, March, 2001.

* 237. Cavalieri, E. and Rogan, E. A unified mechanism on the initiation of cancer and other diseases. 9th Congress International Association of Biomedical Gerontology, Vancouver, B.C. Canada, June 27-30, 2001.

* 238. Cavalieri, E. and Rogan, E. Endogenous catechol estrogen quinones: A unifying mechanism of tumor initiation. Symposium on Mechanisms of Estrogen Carcinogenesis, American Chemical Society, Chicago, IL, August 26-30, 2001.

* 239. Cavalieri, E. Catechol quinones as initiators of cancer and other diseases. Dept. of Chemistry, Tulane University, New Orleans, LA, October 29, 2001.

* 240. Cavalieri, E. A unified mechanism in the initiation of cancer and other diseases. Dept. of Chemistry, University of Nebraska, Lincoln, NE, February 8, 2002.

241. Chakravarti, D., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. The double role of DNA adducts in tumor initiation in mouse skin: Formation of initiated cells by inducing oncogenic mutations and regulation of early preneoplastic clonal proliferation. Amer. Assoc. Cancer Res., San Francisco, CA, April 6-10, 2002.

242. Chakravarti, D., Bhattacharya, G., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. The biology of clonal proliferation of unpromoted initiated cells carrying dibenzo[*a,l*]pyrene-induced H-*ras* codon 61 mutations in early preneoplastic SENCAR mouse skin. Amer. Assoc. Cancer Res., San Francisco, CA, April 6-10, 2002.

* 243. Cavalieri, E. A unified mechanism in the initiation of cancer and other diseases by catechol quinones. Pacific Northwest Research Institute, Seattle, WA, May 22, 2002.

* 244. Cavalieri, E. Meccanismo unificatore nell'etiologia del cancro e di altre malattie. La prevenzione è una realtà a portata di mano. First International Convention of the Italian Scientists in the World, Roma, Italy, March 10-12, 2003.

245. Rogan, E.G., Singh, S., Chakravarti, D., Higginbotham, S. and Cavalieri, E.L. Differential expression of estrogen-metabolizing enzymes in four quadrants of human breast. Amer. Assoc. Cancer Res., Washington, D.C., July 11-14, 2003.

246. Chakravarti, D., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. Benzo[*a*]pyrene- and benzo[*a*]pyrene-7,8-dihydrodiol-induced H-*ras* mutations in early preneoplastic mouse skin, as well as in papillomas, are correlated with depurinating DNA adducts. Amer. Assoc. Cancer Res., Washington, D.C., July 11-14, 2003.

247. Cavalieri, E., Kohli, E., Zahid, M. and Rogan, E. Greater reactivity of estradiol-3,4-quinone *vs* estradiol-2,3-quinone with DNA in the formation of depurinating DNA adducts. Amer. Assoc. Cancer Res., Washington, D.C., July 11-14, 2003.

248. Chakravarti, D., Mailander, P.C., Higginbotham, S., Cavalieri, E.L. and Rogan, E.G. The catechol estrogen-3,4-quinone metabolites induces mutations in the mammary gland of ACI rats. Amer. Assoc. Cancer Res., Washington, D.C., July 11-14, 2003.

249. Cavalieri, E., Saeed, M., Gunselman, S. and Rogan, E. Depurination of adenine and guanine adducts occurs in DNA, but only very slowly in RNA. Amer. Assoc. Cancer Res., Washington, D.C., July 11-14, 2003.

* 250. Cavalieri, E. Initiation of cancer and neurodegenerative diseases by catechol quinones: A unifying mechanism. Erice, Sicily, Italy, October 24-31, 2003.

* 251. Cavalieri, E. La prevenzione è la cura del cancro. Lyons Club, Correggio Emilia, Italy, November 3, 2003.

* 252. Cavalieri, E. Unifying mechanism in the etiology of cancer and neurodegenerative diseases. Prevention is a reality at hand. Eppley Cancer Center Grand Rounds, UNMC, Omaha, NE, November 10, 2003.

253. Gunselman, S.J., Saeed, M., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. Formation of the depurinating N3adenine and N7guanine adducts by reaction of DNA with hexestrol-3′,4′-+quinone or enzyme-activated 3′-hydroxyhexestrol. Implications for a unifying mechanism of tumor initiation by natural and synthetic estrogens. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

254. Saeed, M., Zahid, M., Gunselman, S.J., Rogan, E. and Cavalieri, E. Slow loss of deoxyribose from the N7deoxyguanosine adducts of estradiol-3,4-quinone and hexestrol-3′-4′-quinone. Implications for mutagenic activity. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

255. Singh, S., Bosland, M.C., Cavalieri, E.L. and Rogan, E.L. Effect of treatment with estradiol or testosterone on the expression of CYP19, CYP1B1, COMT and NQO1 in the prostate of male Noble rats. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

256. Zahid, M., Olson, K., Gunselman, S., Chakravarti, D., Rogan, E. and Cavalieri, E. Mass spectrometric determination of the rate of depurination of 7-methylguanine, 3-methyladenine and 7-methyladenine after reaction of methyl methanesulfonate with DNA. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

257. Zhang, Y., Schoomaker, S., Cavalieri, E. and Rogan, E. Metabolism of estradiol by cytochrome P450 in rat liver microsomes to form quinones that bind to DNA. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

258. Krisnamachari, V., Olson, K., Rogan, E. and Cavalieri, E.L. Reaction of dopamine *ortho*-quinone in the formation of depurinating adducts. Implications for neurodegenerative disorders. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

259. Raghavanpillai, A., Zahid, M., Olson, K., Rogan, E. and Cavalieri, E. Slow loss of deoxyribose from N7deoxyguanosine adducts of catechol quinone: Possible relevance for mutagenic activity. Amer. Assoc. Cancer Res., Orlando, FL, March 27-31, 2004.

* 260. Cavalieri, E. Meccanismo unificatore nell'eziologia del cancro e di alter malattie. La prevenzione è una realtà a portata di mano. Center for High Technology and Education in Biomedical Sciences, Catholic Uhiversity, Campobasso, Italy, September 23, 2004.

* 261. Cavalieri, E., What is the scientific evidence that estrogen compounds induce genotoxic events initiating cancer? Molecular Biology Etiology Program, Eppley Research Institute, UNMC, October 26, 2004.

* 262. Cavalieri, E. and Rogan, E. Catechol quinones in the initiation of cancer and other diseases: A target for prevention. Keystone Symposia Meeting, Hormonal Regulation of Tumorigenesis, Monterey, California, February 20-25, 2005.

263. Saeed, M., Rogan, E. and Cavalieri, E. Mechanism of tumor initiation by the human carcinogen diethylstilbestrol: The defining link to natural estrogens. Amer. Assoc. Cancer Res., Anaheim, CA, April 16-20, 2005.

264. Yue, W., Wang, J.-P., Fan, P., Rogan, E., and Cavalieri, E. Estradiol can cause breast cancer through a non-receptor mediated mechanism in ERα knockout/Wnt-1 transgenic mice. Amer. Assoc. Cancer Res., Anaheim, CA, April 16-20, 2005.

* 265. Cavalieri, E.L. and Rogan, E.G. The etiology of breast cancer. Prevention is now the solution. Era of Hope, Department of Defense Breast Cancer Research Meeting, Philadelphia, PA, June 8-11, 2005

* 266. Cavalieri, E.L., Saeed, M. and Rogan, E. The mechanism of tumor initiation by the human carcinogen diethylstilbestrol is similar to that of natural estrogens. Era of Hope, Department of Defense Breast Cancer Research Meeting, Philadelphia, PA, June 8-11, 2005

* 267. Rogan, E.G. and Cavalieri, E.L. The role of estrogen metabolism in the initiation of human breast cancer. Era of Hope, Department of Defense Breast Cancer Research Meeting, Philadelphia, PA, June 8-11, 2005

* 268. Yue, W., Wang, J.-P., Fan, P., Rogan, E., Cavalieri, E., and Santen, R. Estradiol can cause breast cancedr through a non-receptor mediated mechanism in ERα knockout/Wnt-1 transgenic mice. Era of Hope, Department of Defense Breast Cancer Research Meeting, Philadelphia, PA, June 8-11, 2005

* 269. Cavalieri, E., Russo, J., Guttenplan, J., Santen, R., Sutter, T., Rogan, E., Ingle, J., and Hart, E. Estrogen-induced depurination of DNA: A novel target for breast cancer prevention. Center for Excellence Meeting, Department of Defense Breast Cancer Research Program, Baltimore, MD, October 6-7, 2005.

* 270. Cavalieri, E. L'origine del cancro e di alter malattie. Biblioteca Mandotti, Guastalla, Italy, September 12, 2005.

* 271. Cavalieri, E. L'origine commune du cancer et d'antres maladies. Rotary Club Lyon East, Lyon, France, October 17, 2005.

* 272. Cavalieri, E. The common mechanism in the initiation of cancer and other diseases. Department of Chemistry, Kansas State University, Manhattan, KS, November 17, 2005.

273. Venugopal, D., Mailander, P.C., Higginbotham, S., Rogan, E.G., Cavalieri, E.L. and Chakravarti, D. Correlations between DNA adducts and mutations in preneoplastic mouse skin and papillomas induced by polycyclic aromatic hydrocarbons. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

274. Gaikwad, N.W., Markushin, Y., Saeed, M., Jankowiak, R., Trock, B.J., Rogan, E.G. and Cavalieri, E.L. The depurinating 4-hydroxyestrone(estradiol)-1-N3Ade DNA adducts as biomarkers of prostate cancer risk. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

275. Gaikwad, N.W., Cavalieri, E.L. and Rogan, E.G. NQO1-catalyzed reduction of estradiol-3,4-quinone. Implications for tumor initiation by estrogens. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

276. Lu, F., Cavalieri, E.L. and Rogan, E.G. TCDD-induced expression of cytochrome P450 enzymes and formation of estrogen metabolites in human breast epithelial MCF-10F cells. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

277. Rogan, E.G., Zhang, Y., Gaikwad, N.W., Olson, K., Zahid, M. and Cavalieri, E.L. Cytochrome P450 isoforms catalyze oxidation of catechol estrogens to their quinones, which react with DNA. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

278. Zahid, M., Saeed, M., Olson, K., Gaikwad, N., Rogan, E., Cavalieri, E. Inhibition of the formation of the N3Ade and N7Gua depurinating adducts after reaction of estradiol-3,4-

quinone or lactoperoxidase-oxidized 4-hydroxyestradiol with DNA. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

279. Saeed, M., Rogan, Ed., Cavalieri, E., Sheriff, F., Fernandez, S. and Russo, J. Formation of the DNA depurinating N3Ade and N7Gua adducts of 4-hydroxyestradiol by MCF-10F cells cultured with the carcinogenic estrogen metabolite 4-hydroxyestradiol. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

280. Singh, S., Zahid, M., Gaikwad, N., Chakravarti, D., Cavalieri, E.L. and Rogan, E.G. The effect of NAD(P)H:quinone oxidoreductase 1 polymorphisms on estrogen metabolism in relation to initiation of breast cancer. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

281. Saeed., M., Rogan, E. and Cavalieri, E. Formation of depurinating N3Adenine and N7Guanine adducts after reaction of 1,2-naphthoquinone or enzyme-activated 1,2-dihydroxynaphthalene with DNA. Implications on the metabolic activation of naphthalene. Amer. Assoc. Cancer Res., Washington, DC, April 1-5, 2006.

282. Cavalieri, E. Symposium Co-Chairman, Special Topic Symposium, Catechol Estrogen Quinones as Initiators of Breast and Other Human Cancers, 81st Annual Meeting "Science and the Next Generation" AAAS-SWARM Meeting, Tulsa, OK, April 5-8, 2006

*283. Cavalieri, E. Introductory Remarks and A unifying mechanism in the initiation of cancer and other diseases. 81st Annual Meeting "Science and the Next Generation" AAAS-SWARM Meeting, Tulsa, OK, April 5-8, 2006.

*284. Cavalieri, E. Keynote speaker, Catechol quinones of estrogens and dopamine in the initiation of cancer and neurodegenerative diseases. 132nd Advanced Course on Estrogens and Human Diseases, Erice, Italy, May 15-21, 2006.

*285. Cavalieri, E. The role of depurinating DNA adducts in the initiation of cancer by aromatic hydrocarbons. Naphthalene State-of-the-Science Symposium, Monterey, CA, October 9-12, 2006.

*286. Cavalieri, E. From aromatic hydrocarbons to estrogens and then back to benzene and naphthalene. Naphthalene State-of-the-Science Symposium, Monterey, CA, October 9-12, 2006.

287. Khmelnitsky, M., Kosinska, W., Cavalieri, E.L., Rogan, E.G., Chakravarti, D. and Guttenplan, J.B. Mutagenic activity and specificity of estradiol and metabolites in *lacI* rat mammary gland and liver. Amer. Assoc. Cancer Res., Los Angeles, CA, April 14-18, 2007.

288. Vega, K., Rogan, E.G., Cavalieri, E.L. and Bosland, M.C. Steroid hormone-induced prostate carcinogenesis in the Noble (NBL) rat: The effects of an aromatase inhibitor and catechol estrogens. Amer. Assoc. Cancer Res., Los Angeles, CA, April 14-18, 2007.

*289. Cavalieri, E., Rogan, E., Pruthi, S., Ingle, J. Molecular etiology of breast cancer: Biomarkers of risk and prevention. 15th Annual National Cancer Institute SPORE Meeting, Baltimore, MD, July 7-10, 2007.

290. Pruthi, S., Sandhu, N.P., Ingle, J.N., Suman, V.J., Rogan E.G. and Cavalieri, E. Estrogen-DNA adducts identified in urine as potential biomarkers of breast cancer risk. 2007 ASCO Breast Cancer Symposium, San Francisco, CA, September 7-8, 2007.

*291. Cavalieri, E. From basic to translational research: The fundamental discoveries to understand the mechanism of cancer initiation. Clinical/Translational Research Conference, University of Nebraska Medical Center, Omaha, NE, October 15, 2007.

*292. Cavalieri, E. Fundamental discoveries to understand the mechanism of cancer initiation: Depurinating adducts as biomarkers of breast and prostate cancer risk and their use in cancer prevention. VA Friday Seminar, Veteran's Administration Medical Center, Omaha, NE, November 13, 2007.

293. Cavalieri, E., Gaikwad, N., Rogan, E., Pruthi, S., Ingle, J. Molecular etiology of breast cancer: potential biomarkers of risk and for use in prevention. San Antonio Breast Cancer Symposium, San Antonio, TX, December 12-16, 2007.

*294. Cavalieri, E. Biomarkers of risk for breast and other cancers and for use in their prevention. Era of Hope, Department of Defense Breast Cancer Research Meeting, Baltimore, MD, June 25-28, 2008.

*295. Cavalieri, E. Biomarkers of risk for breast and other cancers and for use in their prevention. Diabetes, Endocrine and Metabolism Research Conference, UNMC, August 15, 2008.

*296. Cavalieri, E. The unifying mechanism in the initiation and prevention of breast and other human cancers. 6th International Symposium on the Intraductal Approach to Breast Cancer, Dr. Susan Love Research Foundation, Santa Monica, CA, February 19-21, 2009.

297. Cavalieri, E. The etiology and prevention of breast, prostate and other human cancers. St. Cloud University, St. Cloud, MN, November 4, 2009.

d. Abstracts

1. Cavalieri, E. and Calvin, M. Molecular characteristics of some carcinogenic hydrocarbons. Proc. Amer. Assoc. Cancer Res. 12, 97 (1971), Chicago, Illinois, April 1971.

2. Cavalieri, E. Charge localization in the carbonium ion of the methylbenzanthracenes. A clue to their mechanism of carcinogenesis. Proc. Amer. Assoc. Cancer Res. 13, 125 (1972), Boston, Massachusetts, May 1972.

3. Cavalieri, E. and Auerbach, R. Charge localization in the carbonium ion of benzpyrenes and methylbenzanthracenes. Coupling with nucleophilic compounds. Proc. Amer. Assoc. Cancer Res. 14, 123 (1973), Atlantic City, New Jersey, April 1973.

4. Cavalieri, E. and Roth, R. Charge localization in the carbonium ion of benzpyrenes and methylbenzanthracenes in relation to the mechanism of tumor initiation. NCI Second Annual Carcinogenesis Collaborative Conference 105 (1973), San Antonio, Texas, November 1973.

5. Cavalieri, E. and Garcia, H. Isotope effect on the carcinogenicity of 3-methylcholanthrene by selective deuteration of the 1-methylene group. Proc. Amer. Assoc. Cancer Res. 15, 14 (1974), Houston, Texas, March 1974.

6. Rogan, E.G. and Cavalieri, E. Binding of aromatic hydrocarbons to DNA in purified rat liver nuclei after induction of nuclear aryl hydroxylase activity by methylcholanthrene. XI International Cancer Congress, Abstract 2, 49 (1974), Florence, Italy, October 1974.

7. Cavalieri, E. Biological evidence for a mechanism of tumor initiation of 3-methylcholanthrene by an isotope effect on its carcinogenicity after selective deuteration of the 1-methylene group. NCI Third Annual Carcinogenesis Conference 117 (1975), Orlando, Florida, February 1975.

8. Rogan, E.G. and Cavalieri, E. Comparison of cytochrome P450 and aryl hydrocarbon hydroxylase levels with binding of aromatic hydrocarbons to DNA in uninduced and induced rat liver nuclei. Proc. Amer. Assoc. Cancer Res. 16, 60 (1975), San Diego, California, May 1975.

9. Cavalieri, E., Roth, R. and Rogan, E.G. Metabolic activation of aromatic hydrocarbons by one-electron oxidation in relation to the mechanism of tumor initiation. NCI Fourth Annual Carcinogenesis Conference 163 (1976), Orlando, Florida, February 1976.

10. Rogan, E., Katomski, P., Roth, R. and Cavalieri, E. Covalent binding of benzo[*a*]pyrene to DNA and RNA at 1, 3 and 6 positions by microsomal activation. Proc. Fed. Am. Soc. Exp. Biol. 36, 305 (1977), Chicago, Illinois, April 1977.

11. Rogan, E., Roth, R., Cavalieri, E., Katomski, P. and Benderson, J. Binding of benzo[*a*]pyrene at 1, 3 and 6 positions to nucleic acids *in vitro* and *in vivo*. Proc. Am. Assoc. Cancer Res. 18, 59 (1977), Denver, Colorado, May 1977.

12. Cavalieri, E., Althoff, J. and Grandjean, C. Comparative carcinogenicity of benzo[*a*]pyrene and 3-methylcholanthrene derivatives and parent compounds with implications on the mechanism of tumor initiation. Proc. Am. Assoc. Cancer Res. 18, 59 (1977), Denver, Colorado, May 1977.

13. Cavalieri, E., Rogan, E. and Saugier, R. An approach to assess the nature of proximate carcinogens for alternant aromatic hydrocarbons. Proc. Am. Assoc. Cancer Res. 19, 812 (1978), Washington, D.C., May 1978.

14. Roth, R., Grandjean, C. and Cavalieri, E. Comparative carcinogenicity of 7-methylbenz[*a*]-anthracene and some of its derivatives of the methyl group. Proc. Am. Assoc. Cancer Res. 19, 811 (1978), Washington, D.C., May 1978.

15. Rogan, E., Katomski, P., Roth, R. and Cavalieri, E. Binding of benzo[*a*]pyrene and 3-methyl-cholanthrene to DNA by horseradish peroxidase. Proc. Fed. Am. Soc. Exp. Biol. 37, 750 (1978), Atlantic City, New Jersey, May 1978.

16. Rogan, E., Roth, R. and Cavalieri, E. ATP-mediated binding of hydroxymethyl aromatic hydrocarbons to DNA. Proc. Am. Assoc. Cancer Res. 20, 217 (1979), New Orleans, Louisiana, May 1979.

17. Cavalieri, E., Rogan, E., Kastomski, P. and Sinha, D. Peroxidase-catalyzed binding of hydrocarbons to DNA: A model for activation by one-electron oxidation. Proc. Am. Assoc. Cancer Res. 20, 218 (1979), New Orleans, Louisiana, May 1979.

18. Rogan, E., Reck, S., Walker, B. and Cavalieri, E. ATP-mediated non-enzymatic covalent binding of hydroxymethyl aromatic hydrocarbons to nucleic acids. Proc. Fed. Am. Soc. Exp. Biol. 39, 330 (1980), Anaheim, California, April 1980.

19. Cavalieri, E., Rogan, E. and Toth, B. Carcinogenicity of the environmental pollutant cyclopenteno[*cd*]pyrene in mouse skin. Proc. Am. Assoc. Cancer Res. 21, 65 (1980), San Diego, California, May 1980.

20. Rogan, E., Reck, S. and Cavalieri, E. ATP- and acid-mediated covalent binding of hydroxymethyl aromatic hydrocarbons to DNA. Proc. Am. Assoc. Cancer Res. 21, 68 (1980), San Diego, California, May 1980.

21. Rogan, E.G. and Cavalieri, E. Horseradish peroxidase/H_2O_2-catalyzed activation of aromatic hydrocarbons. Proc. Fed. Am. Soc. Exp. Biol. 40, 1671 (1981), St. Louis, Missouri, June 1981.

22. Cavalieri, E., Rogan, E. and Hakam, A. Horseradish peroxidase/hydrogen peroxide (HRP/H_2O_2)-mediated binding of polycyclic aromatic hydrocarbons (PAH) by one-electron oxidation. Proc. Am. Assoc. Cancer Res. 23, 61 (1982), St. Louis, Missouri, April 1982.

23. Rogan, E. and Cavalieri, E. Effect of monooxygenase inducers on rat mammary peroxidase and aryl hydrocarbon hydroxylase (AHH). Proc. Am. Assoc. Cancer Res. 23, 80 (1982), St. Louis, Missouri, April 1982.

24. Cavalieri, E., Rogan, E., Murray, W. and Walker, B. Mutagenicity of benzylic esters of aromatic hydrocarbons. Proc. Am. Assoc. Cancer Res. 24, 93 (1983), San Diego, California, May 1983.

25. Cavalieri, E. and Rogan, E. One-electron oxidation in polycyclic aromatic hydrocarbon carcinogenesis. Eur. J. Cancer 19, 1275 (1983), Copenhagen, Denmark, September 1983.

26. Cavalieri, E., Cremonesi, P., Warner, C., Tibbels, S. and Rogan, E. One-electron oxidation of 6-fluorobenzo[*a*]pyrene (BP-6-F) in quinone formation and carcinogenesis. Proc. Am. Assoc. Cancer Res. 25, 124 (1984), Toronto, Canada, May 1984.

27. Rogan, E., Tibbels, S., Warner, C., Higginbotham, S. and Cavalieri, E. Activation of benzo[*a*]pyrene (BP) and BP-6-CH_3 by one-electron oxidation to form DNA adducts. Proc. Am. Assoc. Cancer Res. 25, 124 (1984), Toronto, Canada, May 1984.

28. Cavalieri, E.L. One-electron oxidation in aromatic hydrocarbon carcinogenesis. Symposium on Polycyclic Aromatic Hydrocarbons and Cancer, American Chemical Society Annual Meeting, Philadelphia, Pennsylvania, August 1984. Abstr. Paper Am. Chem. Soc. 188, 1984.

29. Cremonesi, P. and Cavalieri, E. Determination of oxidation potentials of aromatic hydrocarbons by cyclic voltammetry. Sixth International Electro-analytical Symposium 67-70 (1985), Chicago, Illinois, May 1985.

30. Wong, A.K.L., Cavalieri, E. and Rogan, E. Organic hydroperoxide-dependent microsomal metabolism of benzo[*a*]pyrene (BP). The Pharmacologist, 27 (Amer. Soc. Pharmacol. Exper. Toxicol.): 115. Boston, Massachusetts, August 1985.

31. Rogan, E., Devanesan, P. and Cavalieri, E. Prostaglandin H synthase (PHS)-catalyzed binding of polycyclic aromatic hydrocarbons to DNA. Proc. Amer. Assoc. Cancer Res. 26:112 (1986), Los Angeles, California, May 1986.

32. Cavalieri, E., Rogan, E., Higginbotham, S. and Cremonesi, P. Carcinogenicity in mouse skin and rat mammary gland of benzo[*a*]pyrene (BP) and 7,12-dimethylbenz[*a*]anthracene (DMBA) derivatives refuting the diol-epoxide theory. Proc. Amer. Assoc. Cancer Res., 26, 93 (1986) Los Angeles, California, May 1986.

33. Williamson, D.S., Cremonesi, P., Cavalieri, E., Nagel, D.L. Markin, R.S. and Cohen, S.M. Use of multiple quantum filtration for simplification of proton NMR spectra of polycyclic aromatic hydrocarbons. Proc. Amer. Assoc. Cancer Res., 26, 151 (1986), Los Angeles, California, May 1986.

34. Cavalieri, E. and Rogan, E. One-electron oxidation in carcinogenesis and metabolism of polycyclic aromatic hydrocarbons. Proc. 14th UICC International Cancer Congress, 13 (1986) Budapest, August 1986.

35. Cremonesi, P., Cavalieri, E. and Rogan, E. Determination of oxidation potentials of aromatic hydrocarbons (PAH) and other carcinogens by cyclic voltammetry. Proc. 14th UICC International Cancer Congress, 359 (1986) Budapest, August 1986.

36. Rogan, E., Cavalieri, E., Tibbels, S. and Cremonesi, P. Identification of benzo[*a*]pyrene (BP)-deoxyguanosine (dG) adducts formed by one-electron oxidation. Proc. 14th UICC International Cancer Congress, 899 (1986) Budapest, August 1986.

37. Cremonesi, P., Cavalieri, E. and Rogan, E. One-electron oxidation of 6-substituted benzo[*a*]-pyrenes by manganic acetate. Abstracts, 192nd American Chemical Society National Meeting, Organic Section Abs. #11 (1986) Anaheim, California, August 1986.

38. Cremonesi, P., Warner, C., Cavalieri, E. and Rogan, E. Radical cation perchlorates of benzo[*a*]-pyrene and 6-substituted derivatives: Synthesis and reaction with nucleophiles. 193rd American Chemical Society National Meeting, Organic Section, Abstract #167 (1987), Denver, Colorado, April 1987.

39. Tibbels, S., Cavalieri, E., Cremonesi, P. and Rogan, E. Formation of benzo[*a*]-pyrene-deoxyguanosine (dG) adducts by electrochemical oxidation. 193rd American Chemical Society National Meeting, Organic Section, Abstract #168 (1987) Denver, Colorado, April 1987.

40. Cavalieri, E., Devanesan, P., Cremonesi, P., Higginbotham, S. and Rogan, E. Radical cations of polycyclic aromatic hydrocarbons (PAH) in the binding to DNA and protein and in the formation of by cytochrome P-450. Proc. Amer. Assoc. Cancer Res. 27, 129 (1987) Atlanta, Georgia, May 1987.

41. Devanesan, P., Rogan, E. and Cavalieri, E. Radical cation intermediates in the activation of benzo[*a*]pyrene (BP) and 6-fluoro BP (6-FBP) by horse-radish peroxidase (HRP) and prostaglandin H synthase (PHS). Proc. Amer. Assoc. Cancer Res. 27, 130 (1987) Atlanta, Georgia, May 1987.

42. Cavalieri, E., Devanesan, P. and Rogan, E. Cytochrome P-450-catalyzed binding of benzo[*a*]-pyrene to DNA by one-electron oxidation. Proc. Amer. Assoc. Cancer Res., 28, 94 (1988) New Orleans, Louisiana, May 1989.

43. Rogan, E., Higginbotham, S., Cremonesi, P. and Cavalieri, E. Tumor-initiating activity in mouse skin and carcinogenicity in rat mammary gland of dibenzo[*a*]pyrenes. Proc. Amer. Assoc. Cancer Res., 28, 103 (1988) New Orleans, Louisiana, May 1989.

44. Murray, W.J., Markin, R.S., Cavalieri, E. and Rogan, E. A preliminary study correlating ionization potentials of aromatic hydrocarbons with their topological indices. QSAR 88: Proc. Third Internatl. Workshop on Quantitative Structure-Activity Relationships in Environmental Toxicology, p. 193 (1988) Knoxville, Tennessee.

45. Cavalieri, E., Devanesan, P., Cremonesi, P., Higginbotham, S. and Rogan, E. Binding of benzo[*a*]pyrene (BP) to DNA by one-electron oxidation catalyzed by cytochrome P-450 in rat liver nuclei. Proc. Amer. Assoc. Cancer Res., 29, 117 (1989) San Francisco, California, May 1989.

46. Rogan, E., Bodell, W., Devanesan, P. and Cavalieri, E. Characterization of benzo[*a*]pyrene (BP)-DNA adducts formed *in vitro* and in mouse skin *in vivo*. Proc. Amer. Assoc. Cancer Res., 29, 117 (1989) San Francisco, California, May 1989.

47. Devanesan, P., Cremonesi, P., Nunnally, J., Rogan, E. and Cavalieri, E. Metabolism and mutagenicity of dibenzo[*a,l*]pyrene (DB[*a,l*]P) and dibenzo[*a,e*]P. Proc. Amer. Assoc. Cancer Res., 29, 165 (1989) San Francisco, California, May 1989.

48. Cavalieri, E., RamaKrishna, N.V.S., Cremonesi, P., Todorovic, R. and Rogan, E.G. Mechanism of oxygen transfer in cytochrome P-450-catalyzed formation of 3-hydroxy-benzo[*a*]pyrene (3-OHBP) from BP. Proc. Amer. Assoc. Cancer Res., 30, 114 (1990) Washington, D.C., May 1990.

49. Rogan, E., Todorovic, R., Cavalieri, E., Devanesan, P., Park, S. and Gelboin, H. Regiospecific inhibition of the metabolism of benzo[*a*]pyrene (BP) by the monoclonal antibody (MAb) 1-68-

11 to male rat liver cytochrome P-450 2c/RLM5. Proc. Amer. Assoc. Cancer Res., 30, 114 (1990) Washington, D.C., May 1990.

50. Dolnikowski, G.G., Cerny, R.L., Cavalieri, E.L. and Gross, M.L. MS/MS of PAH adducts with pyridine and guanine. Proc. 38th Amer. Soc. Mass Spectrom. Conf., 960-961, Tucson, Arizona, 1990.

51. Rogan, E., Higginbotham, S., RamaKrishna, N. and Cavalieri, E. High tumorigenicity of the environmental dibenzo[*a,1*]pyrene (DB[*a,1*]P) compared to benzo[*a*]pyrene (BP) and 7,12-dimethylbenz[*a*]anthracene (DMBA) in mouse skin and rat mammary gland. Proc. Amer. Assoc. Cancer Res., 31, 104 (1991), Houston, Texas, May 1991.

52. Devanesan, P., RamaKrishna, N., Cavalieri, E., Rogan, E., Jeong, H., Jankowiak, R. and Small, G. Predominant formation of depurinated benzo[*a*]pyrene (BP)-DNA adducts by horseradish peroxidase (HRP)- and cytochrome P-450-catalyzed one-electron oxidation. Proc. Amer. Assoc. Cancer Res., 31, 87 (199l), Houston, Texas, May 1991.

53. RamaKrishna, N.V.S., Cavalieri, E. and Rogan, E. DNA adducts of 7,12-dimethylbenz[*a*]-anthracene (DMBA) formed by electrochemical oxidation and horseradish peroxidase (HRP). Proc. Amer. Assoc. Cancer Res., 31, 95 (1991), Houston, Texas, May 1991.

54. Rogan, E.G., RamaKrishna, N.V.S., Devanesan, P.D., Padmavathi, N.S. and Cavalieri, E.L. Formation of 7,12-dimethylbenz[*a*]anthracene (DMBA)-DNA adducts in mouse skin by one-electron oxidation. Proc. Amer. Assoc. Cancer Res., 32, 135 (1992), San Diego, California, May 1992.

55. Devanesan, P., RamaKrishna, N.V.S., Padmavathi, N.S., Rogan, E. and Cavalieri, E. Formation of benzo[*a*]pyrene (BP)-DNA adducts in mouse skin by one-electron oxidation. Proc. Amer. Assoc. Cancer Res., 32, 135 (1992), San Diego, California, May 1992.

56. RamaKrishna, N.V.S., Higginbotham, S., Padmavathi, N.S., Johansson, S., Rogan, E. and Cavalieri, E. The extremely potent carcinogen dibenzo[*a,l*]pyrene (DBP): Tumorigenicity in mouse skin and synthesis of nucleoside adducts. Proc. Amer. Assoc. Cancer Res., 32, 113 (1992), San Diego, California, May 1992.

57. Dwivedy, I., Devanesan, P., Rogan, E. and Cavalieri, E. Synthesis of 2,3- and 3,4-estrogen and comparison of DNA adducts formed by the horseradish peroxidase (HRP)-activated catechol estrogens (CE). Proc. Amer. Assoc. Cancer Res., 32, 135 (1992), San Diego, California, May 1992.

58. Cavalieri, E. and Rogan, E. Metabolic activation of the potent carcinogens benzo[*a*]pyrene and dimethylbenz[*a*]anthracene by one-electron oxidation. International Society for Free Radical Research, VI Biennial Meeting, Free Radical Res. Commun. 16, Suppl. 1: #4.4, Torino, Italy, June 1992.

59. Augusto, O., Netto, L.E.S., RamaKrishna, N.V.S., Kolar, C., Cavalieri, E.L., Rogan, E.G. and Lawson, T.A. Evidence for *in vivo* DNA alkylation by methyl radicals. Identification of C8-methylguanine in the hydrolysates of DNA from rats administered 1,2-dimethylhydrazine.

International Society for Free Radical Research, VI Biennial Meeting, Free Radical Res. Commun. 16, Suppl. 1: #14.14, Torino, Italy, June 1992.

60. Cavalieri, E. and Rogan, E. Identification and quantitation of aromatic hydrocarbon-DNA depurination adducts formed *in vitro* and *in vivo*. Environmental and Molecular Mutagenesis, 21, Suppl. 22, 12 (1993). E.C. was invited speaker at the Environmental Mutagen Society Annual Meeting, Norfolk, Virginia, April 17-22, 1993.

61. Devanesan, P., Todorovic, R., Rogan, E. and Cavalieri, E. ^{32}P-Postlabeling analysis of 6-fluorobenzo[*a*]pyrene (6-FBP) and 6-methylbenzo[*a*]pyrene (6-CH_3BP)-DNA adducts. Proc. Amer. Assoc. Cancer Res., 33, 138 (1993), Orlando, Florida, May 1993.

62. Cavalieri, E., RamaKrishna, N.V.S., Li, K.-M. and Rogan, E. Adducts of 6-methylbenzo[*a*]-pyrene (6-CH_3BP) and 6-fluorobenzo[*a*]pyrene (6-FBP) to deoxyribonucleosides formed by electrochemical oxidation. Proc. Amer. Assoc. Cancer Res., 33, 138 (1993), Orlando, Florida, May 1993.

63. Rogan, E., Higginbotham, S., RamaKrishna, N.V.S., Devanesan, P. and Cavalieri, E. Binding of benzo[*a*]pyrene (BP) to free and membrane-bound DNA in rat liver nuclei. Proc. Amer. Assoc. Cancer Res., 33, 139 (1993), Orlando, Florida, May 1993.

64. Li, K.-M., Todorovic, R., Rogan, E.G. and Cavalieri, E.L. Determination of dibenzo[*a,l*]-pyrene-DNA depurination adducts formed in horseradish peroxidase- and microsome-catalyzed reactions. Proc. Amer. Assoc. Cancer Res., 35, 113 (1994), San Francisco, CA, April 1994.

65. Chakravarti, D., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. Dibenzo[*a,l*]pyrene-initiated mouse skin tumors contain a codon 61 mutation in c-H-*ras* gene. Proc. Amer. Assoc. Cancer Res., 35, 153 (1994), San Francisco, CA, April 1994.

66. Devanesan, P., Li, K.-M., Rogan, E.G. and Cavalieri, E.L. DNA adducts of the potent carcinogen 3-methylcholanthrene. Proc. Amer. Assoc. Cancer Res., 35, 113 (1994), San Francisco, CA, April 1994.

67. Stack, D.E., Cremonesi, P., Rogan, E.G. and Cavalieri, E.L. Radical cations of benzo[*a*]pyrene: synthesis and reaction with nucleosides. Proc. Amer. Assoc. Cancer Res., 35, 113 (1994), San Francisco, CA, April 1994.

68. Todorovic, R., Casale, G.P., RamaKrishna, N.V.S., Rogan, E. and Cavalieri, E. Production of monoclonal antibodies specific for 7-(benzo[*a*]pyren-6-yl)guanine and their use in developing a competitive enzyme-linked immunosorbent assay. Proc. Amer. Assoc. Cancer Res., 35, 101 (1994), San Francisco, CA, April 1994.

69. Li, K.-M., Todorovic, R., Rogan, E.G. and Cavalieri, E.L. Dibenzo[*a,l*]pyrene (DB[*a,l*]P)- and DB[*a,l*]P-11,12-dihydrodiol-DNA adducts formed in reactions catalyzed by rat liver microsomes. Environ. Molec. Mutagenesis, 23, 38 (1994), Environmental Mutagen Society Annual Meeting, Portland, OR, May 7-12, 1994.

70. Chakravarti, D., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. A codon 61 mutation (CAA to CTA) in C-H-*ras* gene in mouse skin tumors initiated by dibenzo[*a,l*]pyrene (DB[*a,l*]P) or its 11,12-dihydrodiol. Environ. Molec. Mutagenesis, 23, 8 (1994), Environmental Mutagen Society Annual Meeting, Portland, OR, May 7-12, 1994.

71. Li, K.-M., Rogan, E.G., Cavalieri, E.L. Dibenzo[*a,l*]pyrene-N3 adenine adduct formed by one-electron oxidation: synthesis and detection *in vitro*. Proc. Amer. Assoc. Cancer Res., 36, 137 (1995), Toronto, Ontario, Canada, March 1995.

72. Li, K.-M., Rogan, E.G., Cavalieri, E.L. Adducts formed by reaction of (±)-*syn*- and (±)-*anti*-dibenzo[*a,l*]pyrene diol epoxides with DNA. Proc. Amer. Assoc. Cancer Res., 36, 137 (1995), Toronto, Ontario, Canada, March 1995.

73. Devanesan, P.D., Rogan, E.G., Cavalieri, E.L. Identification of stable DNA adducts of dibenzo[*a,l*]pyrene. Proc. Amer. Assoc. Cancer Res., 36, 137 (1995), Toronto, Ontario, Canada, March 1995.

74. Chen, L., Devanesan, P.D., Rogan, E.G., Cavalieri, E.L. Characterization of the 7-H-dibenzo[*c,g*]-carbazole (DBC)-DNA adducts formed *in vitro*. Proc. Amer. Assoc. Cancer Res., 37, 119 (1996), Washington, D.C., April 1996.

75. Li, K.-M., Todorovic, R., Devanesan, P., Rogan, E. G., Cavalieri, E. L. Detection of 3-methyl-cholanthrene-DNA adducts formed *in vitro*. Proc. Amer. Assoc. Cancer Res., 37, 119 (1996), Washington, D.C., April 1996.

76. Todorovic, R., Li, K.-M., Rogan, E.G., Cavalieri, E.L. Identification and quantitation of DNA adducts of benzo[*a*]pyrene (BP), 7,12-dimethylbenz[*a*]anthracene (DMBA) and dibenzo[*a,l*]-pyrene (DB[*a,l*]P) formed in rat mammary glands. Proc. Amer. Assoc. Cancer Res., 37, 119 (1996), Washington, D.C., April 1996.

77. Devanesan, P.D., Ariese, F., Small, G.J., Rogan, E.G. and Cavalieri, E.L. Isolation and identification of stable DNA adducts of dibenzo[*a,l*]pyrene. Proc. Amer. Assoc. Cancer Res., 37, 119 (1996), Washington, D.C., April 1996.

78. Jan, S.-T., Devanesan, P.D., Rogan, E.G., Cavalieri, E. L. DNA damage caused by hexestrol, a carcinogenic nonsteroidal estrogen. Proc. Amer. Assoc. Cancer Res., 37, 120 (1996), Washington, D.C., April 1996.

79. Stack, D.E., Devanesan, P.D., Todorovic, R., Rogan, E.G., Cavalieri, E.L. Genotoxic mechanisms of catechol estrogens: Depurinating adducts and tumor initiation. Proc. Amer. Assoc. Cancer Res., 37, 129 (1996), Washington, D.C., April 1996.

80. Chakravarti, D., Higginbotham, S., Rogan, E.G., Cavalieri, E.L. Detection of preneoplastic oncogenic mutations in PAH-treated mouse skin. Proc. Amer. Assoc. Cancer Res., 37, 135 (1996), Washington, D.C., April 1996.

81. Stack, D.E., Cavalieri, E.L., Rogan, E.G. Catechol estrogens as procarcinogens: Depurinating adducts and tumor initiation. (Stack, D.E., invited speaker) Eighth International

Catecholamine Symposium, Asilomar, CA, October 13-18, 1996; Abstract in *Experimental Neurology*, in press, 1997.

82. Cao, K., Cavalieri, E.L. and Rogan, E.G. Horseradish peroxidase-, lactoperoxidase- and rat liver microsome- catalyzed binding of catechol estrogens to glutathione. Proc. Amer. Assoc. Cancer Res., 38, 42 (1997) San Diego, California, April 1997.

83. Li, K.-M., Todorovic, R., Cavalieri, E.L., Rogan, E.G., Jankowiak, R. and Small, G. Depurinating DNA adducts detected in mouse skin treated with dibenzo[*a,l*]pyrene (DB[*a,l*]P), DB[*a,l*]P-11,12-dihydrodiol, (±)-anti-DB[*a,l*]P diol epoxide (DE) or (±)-syn-DB[*a,l*]PDE. Proc. Amer. Assoc. Cancer Res., 38, 127 (1997) San Diego, California, April 1997.

84. Li, K.-M., Cavalieri, E.L., Rogan, E.G., George, M., Gross, M.,and Seidel, A. Structure elucidation of the eight diastereomers formed by reaction of dibenzo[*a,l*]pyrene diol epoxide DB[*a,l*]PDE with deoxyadenosine (dA). Proc. Amer. Assoc. Cancer Res., 38, 335 (1997) San Diego, California, April 1997.

85. Todorovic, R., Devanesan, P.D., Li, K.-M., Rogan, E.G. and Cavalieri, E.L. Stable dibenzo[*a,l*]pyrene-DNA adducts formed in mouse skin. Proc. Amer. Assoc. Cancer Res., 38, 336 (1997) San Diego, California, April 1997.

86. Devanesan, P.D., Chen, L., Gooden, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. Identification of 7-methyldibenzo[*c,g*]carbazole-DNA adducts formed *in vitro*. Proc. Amer. Assoc. Cancer Res., 38, 336 (1997) San Diego, California, April 1997.

87. Hanson, A.A., Cavalieri, E.L. and Rogan, E.G. Synthesis of aromatic hydrocarbon-nucleoside adducts by iodine oxidation. Proc. Amer. Assoc. Cancer Res., 38, 463 (1997) San Diego, California, April 1997.

88. Rogan, E., Stack, D., Cerny, R., Edney, J., Johannson, S., Higginbotham S. and Cavalieri, E. GC/MS analysis of catechol estrogen metabolites in breast tissue samples. Proc. The Dept. of Defense Breast Cancer Res. Prog. Era of Hope Meeting, 743-744 (1997) Washington, DC, Oct. 31-Nov. 4, 1997.

89. Hanson, A.A., Rogan, E.G., Cavalieri, E.L. Identification and quantitation of 6-methyl-benzo[*a*]pyrene (6-CH_3BP)-DNA stable and depurinating adducts formed *in vitro* and *in vivo*. Proc. Amer. Assoc. Cancer Res., 39, 185 (1998) New Orleans, Louisiana, April, 1998.

90. Li, K.-M., Devanesan, P.D., Rogan, E.G. and Cavalieri, E.L. Formation of the depurinating 4-hydroxyestradiol (4-OHE_2)-1-N7Gua and 4-OHE_2-1-N3Ade adducts by reaction of E_2-3,4-quinone with DNA. Proc. Amer. Assoc. Cancer Res., 39, 636 (1998) New Orleans, Louisiana, April, 1998.

91. Devanesan, P.D., Li, K.-M., Higginbotham, S., Harvey, R.G., Rogan, E.G. and Cavalieri, E.L. Identification of DNA depurinating adducts of the potent carcinogen, 5-methylchrysene (5-MeC). Proc. Amer. Assoc. Cancer Res., 39, 637 (1998) New Orleans, Louisiana, April, 1998.

92. Todorovic, R., Devanesan, P., Zhao, J., Gross, M., Higginbotham, S., Rogan, E. and Cavalieri, E. Determination of catechol estrogen-DNA and thioether adducts in the urine of Syrian golden hamsters treated with 4-hydroxyestradiol. Proc. Amer. Assoc. Cancer Res., 40, 45 (1999) Philadelphia, PA, April, 1999.

93. Devanesan, P., Todorovic, R., Zhao, J., Higginbotham, S., Gross, M., Rogan, E. and Cavalieri, E. Formation of catechol estrogen adducts in kidneys of male hamsters treated with 4-hydroxyestradiol. Proc. Amer. Assoc. Cancer Res., 40, 46 (1999) Philadelphia, PA, April, 1999.

94. Yue, W., Todorovic, R., Wang, J.-P., Santen, R.J. and Cavalieri, E.L. Aromatization of androgens and production of genotoxic estrogen metabolites in aromatase-transfected MCF-7 human breast cancer cells. Proc. Amer. Assoc. Cancer Res., 40, 46 (1999) Philadelphia, PA, April, 1999.

95. Balu, N., Li, K.-M., Rogan, E. and Cavalieri, E. A unifying mechanism in the reaction of catechol-catecholamine- and catechol estrogen- with nucleophilic sites in DNA. Proc. Amer. Assoc. Cancer Res., 40, 46 (1999) Philadelphia, PA, April, 1999.

96. Li, K.-M., Liang, W., Devanesan, P., Rogan, E. and Cavalieri, E. Relative stability of 4-hydroxyestradiol-1-N7dG compared to other depurinating nucleoside adducts. Proc. Amer. Assoc. Cancer Res., 40, 46 (1999) Philadelphia, PA, April, 1999.

97. Chakravarti, D., Mailander, P., Higginbotham, S., Cavalieri, E. and Rogan, E. Relationship of depurinating adducts with H-*ras* oncogenic mutations in mouse skin papillomas induced by benzo[*a*]pyrene, benzo[*a*]pyrene-7,8-dihydrodiol and 6-methylbenzo[*a*]pyrene. Proc. Amer. Assoc. Cancer Res., 40, 507 (1999) Philadelphia, PA, April, 1999.

98. Chakravarti, D., Mailander, P., Higginbotham, S., Cavalieri, E. and Rogan, E. Dibenzo[*a,l*]pyrene induction of single-strand mutations in early preneoplastic mouse skin, followed by multiple transient clonal expansions and regressions of H-*ras* oncogenic mutation-bearing cells. Proc. Amer. Assoc. Cancer Res., 40, 623 (1999) Philadelphia, PA, April, 1999.

99. Badawi, A.F., Cavalieri, E.L. and Rogan, E.G. Effect of chlorinated hydrocarbons on cytochrome P450 (CYP) 1A2 and 1B1 mRNA transcripts and the 2- and 4- hydroxylation of estradiol in female Sprague-Dawley rats. Proc. Amer. Assoc. Cancer Res., 41, 109 (2000) San Francisco, CA, April, 2000.

100. Chakravarti, D., Mailander, P., Cavalieri, E.L. and Rogan, E.G. Estrogen-DNA damage in mouse skin H-*ras* gene is mutated by error-prone repair. Proc. Amer. Assoc. Cancer Res., 41, 107 (2000) San Francisco, CA, April, 2000.

101. Chakravarti, D., Mailander, P., Cavalieri, E.L. and Rogan, E.G. Transforming and non-transforming mutations in dibenzo[*al*]pyrene-initiated and TPA-promoted papillomas. Proc. Amer. Assoc. Cancer Res., 41, 570 (2000) San Francisco, CA, April, 2000.

102. Chapman, K, Zhang, L., Gross, M., Cavalieri, E.L. and Rogan, E.G. Identification of depurinating and stable DNA adducts in human breast cancer cell lines following treatment

with 0.2nM estradiol (E_2) or 4-OHE_2. Proc. Amer. Assoc. Cancer Res., 41, 109 (2000) San Francisco, CA, April, 2000.

103. Crandall, L., Rogan, E.G. and Cavalieri, E.L. Oxidation of catechol estrogens mediated by metal ions. Proc. Amer. Assoc. Cancer Res., 41, 107 (2000) San Francisco, CA, April, 2000.

104. Devanesan, P., Rogan, E.G., Cavalieri, E.L., Bocchinfuso, W., Korach, K. and Santen, R.J. Catechol estrogen metabolites and conjugates in hyperplastic mammary tissue from estrogen receptor α knock-out (ERKO)/Wnt-1 mice. Proc. Amer. Assoc. Cancer Res., 41, 108 (2000) San Francisco, CA, April, 2000.

105. Li, K.-M., Casale, G., Rogan, E.G. and Cavalieri, E.L. Synthesis of *N*-acetyl-lysine adducts with the of 2-hydroxyestradiol and 4-hydroxyestradiol. Proc. Amer. Asoc. Cancer Res., 41, 109 (2000) San Francisco, CA, April, 2000.

106. Li, K.-M., Zhao, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. A unifying mechanism in the reaction of metabolically-activated catechol and dopamine with DNA. Proc. Amer. Assoc. Cancer Res., 41, 96 (2000) San Francisco, CA, April, 2000.

107. Todorovic, R., Devanesan, P., Higginbotham, S., Zhao, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. Metabolic response to treatment of Syrian Golden hamsters with 4-hydroxyestradiol: Analysis of estrogenic compounds in urine. Proc. Amer. Assoc. Cancer Res., 41, 107 (2000) San Francisco, CA, April, 2000.

108. Todorovic, R., Li, K.-M., Higginbotham, S., Zhao, J., Gross, M., Rogan, E.G. and Cavalieri, E.L. Metabolic response to treatment of ACI rat mammary gland with 4-hydroxyestradiol or estradiol-3,4-quinone. Proc. Amer. Assoc. Cancer Res., 41, 107 (2000) San Francisco, CA, April, 2000.

109. Cavalieri, E.L., Devanesan, P.D., Bosland, M.C., and Rogan, E.G. Estrogen metabolites and conjugates: Potential biomarkers of prostate cancer susceptibility. Proc. Amer. Assoc. Cancer Res., 42, 150 (2001) New Orleans, LA, March, 2001.

110. Chakravarti, D., Mailander, P.C., Cavalieri, E.L., and Rogan, E.G. A mixture of dibenzo*[a,l]*pyrene and anti-dibenzo[*a,l*]pyrene diol epoxide induces fewer H-*ras* codon 61 mutations than dibenzo[*a,l*]pyrene alone in Sencar mouse skin. Proc. Amer. Assoc. Cancer Res., 42, 470 (2001) New Orleans, LA, March, 2001.

111. Badawi, A.F., Devanesan, P.D., Edney, J.A., West, W.W., Higginbotham, S.M., Rogan, E.G. and Cavalieri, E.L. Estrogen metabolites and conjugates: Biomarkers of susceptibility to human breast cancer. Proc. Amer. Assoc. Cancer Res., 42, 664 (2001) New Orleans, LA, March, 2001.

112. Rogan, E.G., Higginbotham, S.M., and Cavalieri, E.L. Greater oxidation of catechol estrogens to quinones in the hamster kidney target tissue for carcinogenesis than in the refractory liver. Proc. Amer. Assoc. Cancer Res., 42, 883 (2001) New Orleans, LA, March, 2001.

113. Chakravarti, D., Badawi, A.F., Li, K.M., Mailander, P., Cavalieri, E.L., and Rogan, E.G. How well do measurements of depurinating adducts and abasic sites report the level of depurination induced by chemical carcinogens? Proc. Amer. Assoc. Cancer Res. Supplement, 42, 80 (2001) New Orleans, LA, March, 2001.

114. Zhang, L.-K., Chapman, K.A., Zhao, J., Gross, M.L., Cavalieri, E.L. and Rogan, E.G. Develop and Validate MALDI MS and ESI LC/MS/MS Methods for Determination of Estrogen Quinone-induced Apurinic Sites and Adducts. 49th ASMS Conference, Chicago, IL, May, 2001.

115. Chakravarti, D., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. The double role of DNA adducts in tumor initiation in mouse skin: Formation of initiated cells by inducing oncogenic mutations and regulation of early preneoplastic clonal proliferation. Proc. Amer. Assoc. Cancer Res. 43, 1009 (2002) San Francisco, CA, April, 2002.

116. Chakravarti, D., Bhattacharya, G., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. The biology of clonal proliferation of unpromoted initiated cells carrying dibenzo[a,l]pyrene-induced H-ras codon 61 mutations in early preneoplastic SENCAR mouse skin. Proc. Amer. Assoc. Cancer Res. 43, 698 (2002) San Francisco, CA, April, 2002.

117. Cavalieri, E. and Rogan, E. A unified mechanism in the initiation of cancer and other diseases. In: Journal of the American Aging Association, Vol. 25, (A.K. Balin, ed.), JAAA, Media, PA, p. 50, 2002.

118. Cavalieri, E. and Rogan, E. A unified mechanism in the initiation of cancer. In: Healthy Aging, The Keys to Healthy Living, (K.S. Rugh, ed.), NOW Foods, Bloomingdale, IL, p. 57, 2002.

119. Rogan, E.G., Singh, S., Chakravarti, D., Higginbotham, S. and Cavalieri, E.L. Differential expression of estrogen-metabolizing enzymes in four quadrants of human breast. Proc. Amer. Assoc. Cancer Res. 44, (2nd ed.) 307 (2003) Washington, D.C., July, 2003.

120. Chakravarti, D., Mailander, P.C., Cavalieri, E.L. and Rogan, E.G. Benzo[*a*]pyrene- and benzo[*a*]pyrene-7,8-dihydrodiol-induced H-*ras* mutations in early preneoplastic mouse skin, as well as in papillomas, are correlated with depurinating DNA adducts. Proc. Amer. Assoc. Cancer Res. ., 44, (2nd ed.) 873 (2003) Washington, D.C., July, 2003.

121. Cavalieri, E., Kohli, E., Zahid, M. and Rogan, E. Greater reactivity of Estradiol-3,4-Quinone *vs* Estradiol-2,3-Quinone with DNA in the formation of depurinating DNA adducts. Proc. Amer. Assoc. Cancer Res. 44, (2nd ed.) 180 (2003) Washington, D.C., July, 2003.

122. Chakravarti, D., Mailander, P.C., Higginbotham, S., Cavalieri, E.L. and Rogan, E.G. The catechol estrogen-3,4-quinone metabolites induces mutations in the mammary gland of ACI rats. Proc. Amer. Assoc. Cancer Res., .44, (2nd ed.) 180 (2003) Washington, D.C., July, 2003.

123. Cavalieri, E., Saeed, M., Gunselman, S. and Rogan, E. Depurination of adenine and guanine adducts occurs in DNA, but only very slowly in RNA. Proc. Amer. Assoc. Cancer Res. 44, (2nd ed.) 1324 (2003) Washington, D.C., July, 2003.

124. Gunselman, S.J., Saeed, M., Higginbotham, S., Rogan, E.G. and Cavalieri, E.L. Formation of the depurinating N3adenine and N7guanine adducts by reaction of DNA with hexestrol-3′,4′-quinone or enzyme-activated 3′-hydroxyhexestrol. Implications for a unifying mechanism of tumor initiation by natural and synthetic estrogens. Proc. Amer. Assoc. Cancer Res., 45, 1564 (2004) Orlando, FL, March, 2004.

125. Saeed, M., Zahid, M., Gunselman, S.J., Rogan, E. and Cavalieri, E. Slow loss of deoxyribose from the N7deoxyguanosine adducts of estradiol-3,4-quinone and hexestrol-3′-4′-quinone. Implications for mutagenic activity. Proc. Amer. Assoc. Cancer Res., 45, 1555 (2004) Orlando, FL, March, 2004.

126. Singh, S., Bosland, M.C., Cavalieri, E.L. and Rogan, E.L Effect of treatment with estradiol or testosterone on the expression of CYP19, CYP1B1, COMT and NQO1 in the prostate of male Noble rats. Proc. Amer. Assoc. Cancer Res., 45, 14 (2004) Orlando, FL, March, 2004.

127. Zahid, M., Olson, K., Gunselman, S., Chakravarti, D., Rogan, E. and Cavalieri, E. Mass spectrometric determination of the rate of depurination of 7-methylguanine, 3-methyladenine and 7-methyladenine after reaction of methyl methanesulfonate with DNA. Proc. Amer. Assoc. Cancer Res., 45, 1554 (2004) Orlando, FL, March, 2004.

128. Zhang, Y., Schoomaker, S., Cavalieri, E. and Rogan, E. Metabolism of estradiol by cytochrome P450 in rat liver microsomes to form quinones that bind to DNA. Proc. Amer. Assoc. Cancer Res., 45, 1886 (2004) Orlando, FL, March, 2004.

129. Krishamachari, V., Olson, K., Rogan, E. and Cavalieri, E.L. Reaction of dopamine *ortho*-quinone in the formation of depurinating adducts. Implications for neurodegenerative disorders. Proc. Amer. Assoc. Cancer Res., 45, 1556 (2004) Orlando, FL, March, 2004.

130. Raghavanpillai, A., Olson, K., Rogan, E. and Cavalieri, E. Slow loss of deoxyribose from N7deoxyguanosine adducts of catechol quinone: Possible relevance for mutagenic activity. Proc. Amer. Assoc. Cancer Res., 45, 1553 (2004) Orlando, FL, March, 2004.

131. Saeed, M., Rogan, E. and Cavalieri, E. Mechanism of tumor initiation by the human carcinogen diethylstilbestrol: The defining link to natural estrogens. Proc. Amer. Assoc. Cancer Res., 46, 2129 (2005) Anaheim, CA, April, 2005.

132. Yue, W., Wang, J.-P., Fan, P., Rogan, E., and Cavalieri, E. Estradiol can cause breast cancer through a non-receptor mediated mechanism in ERα knockout/Wnt-1 transgenic mice. Proc. Amer. Assoc. Cancer Res., 46, 2096 (2005) Anaheim, CA, April, 2005.

133. Venugopal, D., Mailander, P.C., Higginbotham, S., Rogan, E.G., Cavalieri, E.L. and Chakravarti, D. Correlations between DNA adducts and mutations in preneoplastic mouse skin and papillomas induced by polycyclic aromatic hydrocarbons. Proc. Amer. Assoc. Cancer Res., 47, 77 (2006) Washington, DC, April, 2006.

134. Gaikwad, N.W., Markushin, Y., Saeed, M., Jankowiak, R., Trock, B.J., Rogan, E.G. and Cavalieri, E.L. The depurinating 4-hydroxyestrone(estradiol)-1-N3Ade DNA adducts as

biomarkers of prostate cancer risk. Proc. Amer. Assoc. Cancer Res., 47, 78 (2006) Washington, DC, April, 2006.

135. Gaikwad, N.W., Cavalieri, E.L. and Rogan, E.G. NQO1-catalyzed reduction of estradiol-3,4-quinone. Implications for tumor initiation by estrogens. Proc. Amer. Assoc. Cancer Res., 47, 445 (2006) Washington, DC, April, 2006.

136. Lu, F., Cavalieri, E.L. and Rogan, E.G. TCDD-induced expression of cytochrome P450 enzymes and formation of estrogen metabolites in human breast epithelial MCF-10F cells. Proc. Amer. Assoc. Cancer Res., 47, 445 (2006) Washington, DC, April, 2006.

137. Rogan, E.G., Zhang, Y., Gaikwad, N.W., Olson, K., Zahid, M. and Cavalieri, E.L. Cytochrome P450 isoforms catalyze oxidation of catechol estrogens to their quinones, which react with DNA. Proc. Amer. Assoc. Cancer Res., 47, 446 (2006) Washington, DC, April, 2006.

138. Zahid, M., Saeed, M., Olson, K., Gaikwad, N., Rogan, E., Cavalieri, E. Inhibition of the formation of the N3Ade and N7Gua depurinating adducts after reaction of estradiol-3,4-quinone or lactoperoxidase-oxidized 4-hydroxyestradiol with DNA. Proc. Amer. Assoc. Cancer Res., 47, 446 (2006) Washington, DC, April, 2006.

139. Saeed, M., Rogan, Ed., Cavalieri, E., Sheriff, F., Fernandez, S. and Russo, J. Formation of the DNA depurinating N3Ade and N7Gua adducts of 4-hydroxyestradiol by MCF-10F cells cultured with the carcinogenic estrogen metabolite 4-hydroxyestradiol. Proc. Amer. Assoc. Cancer Res., 47, 447 (2006) Washington, DC, April, 2006.

140. Singh, S., Zahid, M., Gaikwad, N., Chakravarti, D., Cavalieri, E.L. and Rogan, E.G. The effect of NAD(P)H:quinone oxidoreductase 1 polymorphisms on estrogen metabolism in relation to initiation of breast cancer. Proc. Amer. Assoc. Cancer Res., 47, 835 (2006) Washington, DC, April, 2006.

141. Saeed., M., Rogan, E. and Cavalieri, E. Formation of depurinating N3Adenine and N7Guanine adducts after reaction of 1,2-naphthoquinone or enzyme-activated 1,2-dihydroxynaphthalene with DNA. Implications on the metabolic activation of naphthalene. Proc. Amer. Assoc. Cancer Res., 47, late breaking (2006) Washington, DC, April 2006.

142. Khmelnitsky, M., Kosinska, W., Cavalieri, E.L., Rogan, E.G., Chakravarti, D. and Guttenplan, J.B. Mutagenic activity and specificity of estradiol and metabolites in *lacI* rat mammary gland and liver. Amer. Assoc. Cancer Res., Los Angeles, CA, April 14-18, 2007.

143. Vega, K., Rogan, E.G., Cavalieri, E.L. and Bosland, M.C. Steroid hormone-induced prostate carcinogenesis in the Noble (NBL) rat: The effects of an aromatase inhibitor and catechol estrogens. Amer. Assoc. Cancer Res., Los Angeles, CA, April 14-18, 2007.

144. Cavalieri, E., Rogan, E., Pruthi, S. and Ingle, J., Molecular Etiology of Breast Cancer: Biomarkers of Risk and Prevention, 15th Annual SPORE Investigators' Workshop, Baltimore, MD, July 7-10, 2007.

145. Pruthi, S., Sandhu, N.P., Ingle, J.N., Suman, V.J., Rogan E.G. and Cavalieri, E. Estrogen-DNA adducts identified in urine as potential biomarkers of breast cancer risk. 2007 ASCO Breast Cancer Symposium, San Francisco, CA, September 7-8, 2007.

146. Cavalieri, E., Gaikwad, N., Rogan, E., Pruthi, S., Ingle, J. Molecular etiology of breast cancer: potential biomarkers of risk and for use in prevention. San Antonio Breast Cancer Symposium, San Antonio, TX, December 12-16, 2007.

147. Yang, L., Cavalieri, E.L., Rogan, E.G., Pruthi, S., Ingle, J.N. and Muti, P. The role of estrogen metabolism in risk of developing breast cancer: Detection of novel biomarkers from a case-control study. Society of Toxicology 2008 Annual Meeting, Seattle, WA, March 16-20, 2008.

e. Relevant articles on estrogens

1. New role for estrogen in cancer? R. F. Service, Science, 279:1631-1633, March, 1998.

2. Estrogen and DNA damage: The silent source of breast cancer? K. Miller, J. Natl. Cancer Inst., 95:100-102, January, 2003.

3. Estrogen derivatives signal cancer risk. K. Miller, Science Now, April, 2003.

4. Dr. Ercole Cavalieri leads the fight against cancer. K. Warnecke, Medium Magazine, Omaha, 21-22, June, 2003.

5. Le fatiche di Ercole. Contro il cancro. E. Tincani, La Libertá, Reggio Emilia, Italy, June 2003.

6. Weighing risks of estrogen therapy. Science & Technology, Chem. Eng. News, 81:25-27, October, 2003.

7. Biomarkers still off the mark for detecting breast cancer. Nature Medicine, 16:3, 2010.

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