

FIFTH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL MUTAGENS

**and the 20th Annual Meeting of
The Environmental Mutagen Society**

PROGRAM



July 10 - 15, 1989

**on the campus of
Case Western Reserve University
Cleveland, Ohio, U.S.A.**

**FIFTH INTERNATIONAL CONFERENCE
ON ENVIRONMENTAL MUTAGENS
and the 20th Annual Meeting of
The Environmental Mutagen Society**

**CLEVELAND, OHIO, U.S.A., JULY 10-15, 1989
Campus of Case Western Reserve University (CWRU)**

Mailing Address:

Fifth ICEM

Department of Environmental Health Sciences

School of Medicine

Case Western Reserve University

2119 Abington Road

Cleveland, Ohio 44106 U.S.A.

Telephone: (216)368-6213 Telefax: (216)368-3194

SATELLITE SYMPOSIA

GENETIC TOXICOLOGY OF COMPLEX MIXTURES

Washington, D.C., U.S.A., July 4-7, 1989

Michael D. Waters, Chairman

MUTAGENS AND CARCINOGENS IN THE DIET

Madison, Wisconsin, U.S.A., July 5-7, 1989

Michael W. Pariza, Chairman

**FOURTH INTERNATIONAL CONFERENCE ON
N-SUBSTITUTED ARYL COMPOUNDS; OCCURRENCE,
METABOLISM AND BIOLOGICAL IMPACT OF NITROARENES**

Cleveland, Ohio, U.S.A., July 15-19, 1989

Paul C. Howard, Chairman

BASIC MECHANISMS OF MUTATION

Toronto, Ontario, Canada, July 17-19, 1989

Barry W. Glickman, Chairman

HUMAN POPULATION MONITORING

Galveston, Texas, U.S.A., July 17-19, 1989

Marvin S. Legator, Chairman

GENETIC TOXICOLOGY IN DEVELOPING COUNTRIES

Villa Primavera, Guadalajara, Jalisco, Mexico

July 20-23, 1989

Cristina Cortinas de Nava, Chairman

FIFTH ICEM ORGANIZING COMMITTEE

Frederick J. de Serres, Chairman

Herbert S. Rosenkranz, Local Arrangements

Richard J. Albertini, Publications

David J. Brusick, Special Events

Eugene L. Elmore, Exhibits

Jon C. Mirsalis, Finance

Mortimer L. Mendelsohn, Scientific Program

WELCOME TO THE FIFTH ICEM!
ENVIRONMENTAL MUTAGENESIS AND SOCIETY:
A REASSESSMENT OF NEED

Fifth International Conference on Environmental Mutagens
20th Annual Meeting of the Environmental Mutagen Society
Cleveland, Ohio - July 10-15, 1989

The Environmental Mutagen Society was founded in North America in 1969 to address the problem of the possible adverse health effects from exposure to mutagenic environmental chemicals. At that time, it was clear that many chemicals to which there was extensive human exposure were mutagens, that could potentially produce cancer in somatic cells, and mutations in germ cells, with subsequent risk to future generations. Twenty years later, at the 5th International Conference on Environmental Mutagens, members of all Environmental Mutagen Societies will convene to take stock of the field. During this 20 years the accomplishments have been enormous. It is a fitting time to present the current status of the science, to review initial goals and objectives and to re-evaluate the role of the research in this field of environmental mutagenesis to the problems presented by human exposure. In addition, the conference will provide an opportunity to establish new priorities for future research.

The overall theme for the 5th ICEM will be addressed in plenary lectures at the opening and closing ceremonies under the general headings: (1) "The first 20 years of environmental mutagenesis: Initial goals and major accomplishments", and (2) "The next 20 years: Future research directions".

Issues of concern, that resulted in the formation of the EMS and sister Societies all over the world, will be examined in a series of 240 lectures in 5 concurrent Symposia. In addition, over 680 posters have been arranged into a series of 4 poster sessions that will permit more personalized discussion and debate on topics of interest. Commercial exhibitors will be housed in the same building as the poster sessions, and participants will be able to interact with exhibitors during the coffee breaks and poster sessions.

The 5th ICEM presents a truly international flavor and will provide an opportunity for interaction and discussion with fellow members of Societies from all over the world. About 450 of the registered participants are from outside of the Americas. This conference will provide an unusual opportunity to interact with and learn about the problems being studied by scientists in this field from all over the world. A wide variety of mechanisms have been developed to permit full interaction between all Conference participants during this week-long Conference. All sessions are open to all participants; all meals will be served on the CWRU campus (breakfast at Fribley, lunch at Fribley and Carlton); all participants can attend the evening social functions.

Environmental mutagenesis and genetic toxicology are in a period of transition. This 5th International Conference and the 20th Anniversary of the founding of the Environmental Mutagen Society will provide an opportunity to re-evaluate the status of the general problems that our Societies were formed to address. What have we accomplished in the past 20 years? Where do we go from here?

Frederick J. de Serres
Chairman, National Organizing Committee

INTERNATIONAL PROGRAM ADVISORY COMMITTEE

Bruce N. Ames, USA
Diana Anderson, Great Britain
John Ashby, Great Britain
Akio Awa, Japan
J. Carl Barrett, USA
Georg Becher, Norway
Nikolai P. Bochkov, USSR
D. Bootsma, The Netherlands
Bryn A. Bridges, Great Britain
Patricia A. Buffler, USA
Byron E. Butterworth, USA
C. Thomas Caskey, USA
James E. Cleaver, USA
Andrew Czeizel, Hungary
Silvio De Flora, Italy
Vicki L. Dellarco, USA
John Drake, USA
Maximo E. Drets, Uruguay
Udo H. Ehling, W. Germany
H. John Evans, Great Britain
Michael Fenech, Australia
Sheila M. Galloway, USA
James M. Gentile, USA
Barry W. Glickman, Canada
Philip C. Hanawalt, USA
Philip E. Hartman, USA
Hikoya Hayatsu, Japan
Robert H. Haynes, Canada
Kari Hemminki, Finland
Maurice Hofnung, France
Jerry L. Hsueh, People's Republic of China
Donald H. Hughes, USA
Motoi Ishidate, Japan
Ryuichi Kato, Tokyo, Japan
Ib Knudsen, Denmark
Yukiaki Kuroda, Japan
Bo Lambert, Sweden
Philip J. Landrigan, USA
Robert Langenbach, USA
William Lijinsky, USA
Tomas Lindahl, Great Britain
Goran Lofroth, Sweden
Paul H.M. Lohman, The Netherlands
Mary F. Lyon, Great Britain
James T. MacGregor, USA
Barry H. Margolin, USA
Taijiro Matsushima, Japan
Ethel E. Moustacchi, France
John Mulvihill, USA
Thomas H. Murray, USA
A. T. Natarajan, The Netherlands
N.K. Notani, India
Franz Oesch, W. Germany
Per Oftedal, Norway
Arthur Penn, USA
Michael Plewa, USA
R. Julian Preston, USA
Claes Ramel, Sweden
Louis J. Romano, USA
Dietrich Schmahl, W. Germany
Delbert M. Shankel, USA
C. B. S. R. Sharma, India
Michael D. Shelby, USA
Frederik H. Sobels, The Netherlands
Marja Sorsa, Finland
Takashi Sugimura, Japan
Hiraku Takebe, Japan
Raymond Tennant, USA
Snorri S. Thorgeirsson, USA
Lorenzo Tomatis, France
Stanley Venitt, Great Britain
R. C. von Borstel, Canada
Alexander W. Wood, USA
R.G. Worton, Canada
Friedrich E. Wuegler, Switzerland
Errol Zeiger, USA
Jiang Zousho, People's Republic of China

PROGRAM STAFF AND ADVISORS Lawrence Livermore National Laboratory

Elbert Branscomb
Anthony Carrano
James Felton
Barton Gledhill
Debora Hackel
Ronald Jensen

Irene Jones
Harvey Mohrenweiser
Sandra Snyder
Larry Thompson
James Tucker
Andrew Wyrobek

SOCIETIES

THE INTERNATIONAL ASSOCIATION OF ENVIRONMENTAL MUTAGEN SOCIETIES (IAEMS)

President: Frits H. Sobels
Vice-Presidents: Frederick J. de Serres
Donald G. MacPhee
Secretary: Marja Sorsa
Treasurer: Tajiro Matsushima

THE ENVIRONMENTAL MUTAGEN SOCIETY (EMS)

President: Sheila M. Galloway
President Elect: R. Julian Preston
Secretary: Rosalie K. Elespuru
Treasurer: James T. MacGregor

THE EUROPEAN ENVIRONMENTAL MUTAGEN SOCIETY (EEMS)

President: Andrew Czeizel
Secretary: Sandor Igali
Councillor: Claes Ramel

THE ENVIRONMENTAL MUTAGEN SOCIETY OF JAPAN (JEMS)

President: Tajiro Matsushima
Secretary: Toshio Kuroki
Councillors: Hikoya Hayatsu
Shigeaki Sato

THE ENVIRONMENTAL MUTAGEN SOCIETY OF INDIA (EMSI)

President: Nihal K. Notani
Secretary: Pawan S. Chauhan
Councillor: Yog R. Ahuja

THE AUSTRALIAN AND NEW ZEALAND ENVIRONMENTAL MUTAGEN SOCIETY (ANZEM)

President: Donald G. MacPhee
Secretary: Peter Abbott
Councillor: Lynnette Ferguson

THE LATIN AMERICAN ASSOCIATION OF ENVIRONMENTAL MUTAGENESIS, CARCINOGENESIS AND TERATOGENESIS (ALAMCTA)

President: F. N. Dulout
Secretary: Hamilton Targa
Councillor: Cristina Cortinas de Nava

JOINING ORGANIZATIONS

CHINESE ENVIRONMENTAL MUTAGEN SOCIETY
PAN-AFRICAN ENVIRONMENTAL MUTAGEN SOCIETY
THE ENVIRONMENTAL MUTAGEN SOCIETY OF THE PHILIPPINES
THE THAI ENVIRONMENTAL MUTAGEN SOCIETY
THE KOREAN SOCIETY OF ENVIRONMENTAL MUTAGENS

**FIFTH INTERNATIONAL CONFERENCE
ON ENVIRONMENTAL MUTAGENS**

PROGRAM

8:30 AM, Monday, July 10, 1989

OPENING CEREMONY

Church of the Covenant
11205 Euclid Ave.

INTRODUCTIONS

Frederick J. de Serres

Chairman, National Organizing Committee

Sheila M. Galloway

President, Environmental Mutagen Society

Frits H. Sobels

President, International Association of Environmental Mutagen Societies

Herbert S. Rosenkranz

Professor and Chairman, Department of Environmental Health Sciences,
Case Western Reserve University

Agnar Pytte

President, Case Western Reserve University

9:15 AM

OPENING PLENARY

Church of the Covenant

WHERE HAVE WE BEEN? THE LAST 20 YEARS OF ENVIRONMENTAL
MUTAGENESIS. **David J. Brusick**, Hazelton Laboratories America Inc.,
Vienna, VA 22180, USA.

10:15 AM

PROGRAM INTRODUCTION

Church of the Covenant

Mortimer L. Mendelsohn

Chairman, Scientific Program

10:30

COFFEE

Baker Building

MONDAY, 11:00 AM - 4:00 PM
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

Symposium SA01: Broad Mutational Mechanisms

Sponsored by the National Institute of Environmental Health Sciences

Chaired by
Heinrich Malling, USA.

- 11:00 EVOLUTIONARY SIGNIFICANCE OF MUTATION AND REPAIR. **Robert H. Haynes**, York University, Toronto, Ontario, CANADA M3J 1P3. (#684)
- 11:30 THE EVOLUTION OF MUTATION RATES: PROPECTS FOR ANTIMUTAGENESIS. **John W. Drake**, Nat'l Inst. of Environmental Health Sciences, Research Triangle Park, NC 27709, USA. (#145)
- 12:00 THE ORIGIN OF MUTANTS. **Barry G. Hall**, University of Connecticut, Storrs, CT 06268, USA. (#229)
- 12:30 **Lunch** - Fribley and Carlton Commons
- 1:30 ROLE OF DNA STRUCTURE IN FRAMESHIFT MUTAGENESIS. **Robert P. P. Fuchs**, IBMC du CNRS, 67084 Strasbourg - Cedex, FRANCE. (#L21)

Symposium SA02: Adduction and DNA Damage

Sponsored by Xerox Corporation

Chaired by
G. Lin, USA.

- 2:00 THE ROLE OF CARCINOGEN DNA ADDUCT STRUCTURE IN THE INDUCTION OF MUTATIONS. **Edward L. Loechler**, Boston University, Boston, MA 02215, USA. (#337)
- 2:30 SITE-SPECIFIC MUTAGENESIS. **Arthur P. Grollman**, SUNY at Stony Brook, Stony Brook, NY 11794, USA. (#217)
- 3:00 CHEMISTRY OF DNA ALKYLATION AND ARAALKYLATION. **Anthony Dipple**, Nat'l Cancer Inst.-Frederick Cancer Res. Fac., Frederick, MD 21701, USA. (#137)
- 3:30 DNA ADDUCT FORMATION IN RELATION TO TUMORIGENESIS IN MICE CONTINUOUSLY ADMINISTERED 2-ACETYLAMINO-FLUORENE OR 4-AMINOBIIPHENYL. **Frederick A. Beland**, Nat'l. Ctr. for Toxicological Res., Jefferson, AK 72079, USA. (#044)

(Symposium SA02 continues on Tuesday, 8:00 am)

11:00 AM - 4:00 PM, MONDAY
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

Symposium SB01: Structure Activity Relationships

Chaired by

John Weisburger, USA. and Majdi Shahin, France

- 11:00 AN SAR STUDY OF THE MUTAGENICITY OF PAH COMPOUNDS IN SALMONELLA TYPHIMURIUM. **Peter C. Jurs**, Penn State University, University Park, PA 16802, USA. (#391)
- 11:30 STRUCTURE ACTIVITY ANALYSIS OF AZO DYES AND RELATED COMPOUNDS. **Larry D. Claxton**, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, USA. (#107)
- 12:00 GENOTOXIC AND NON-GENOTOXIC CARCINOGENS CAN BE IDENTIFIED AND PREDICTED BY CASE, AN ARTIFICIAL INTELLIGENCE SYSTEM. **Herbert S. Rosenkranz**, Case Western Reserve University, Cleveland, OH 44106, USA. (#480)
- 12:30 **Lunch** - Fribley and Carlton Commons

Symposium SB02: Metabolism: P-450

Chaired by

Donald Hughes, USA. and Franz Oesch, W. Germany

- 1:30 CONTROL OF ULTIMATE MUTAGENIC SPECIES BY DIVERSE ENZYMES. **Franz Oesch**, University of Mainz, D-6500, Mainz, W. GERMANY. (#L52)
- 2:00 METABOLISM AND ACTIVATION OF FOOD MUTAGENS. **Nigel J. Gooderham**, Royal Postgrad. Med. School, Univ of London, London, W12 ONN, UNITED KINGDOM. (#206)
- 2:30 GENETIC CHARACTERIZATION OF P-450S. **Frank Gonzalez**, National Institutes of Health, Bethesda, MD 20892, USA.
- 3:00 ACTIVATION OF MUTAGENS BY HUMAN CYTOCHROME P-450 ENZYMES. F. **Peter Guengerich**, Vanderbilt Univ. School of Medicine, Nashville, TN 37232, USA. (#224)
- 3:30 THE DEVELOPMENT OF A PANEL OF HUMAN CELL LINES EXPRESSING SPECIFIC HUMAN CYTOCHROME P-450 CDNAS. **C.L. Crespi**, Gentest Corp., Woburn, MA 01801, USA. (#116)

(Symposium SB02 continues on Tuesday, 8:00 am)

MONDAY, 11:00 AM - 4:00 PM
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

Symposium SC01: Somatic Mutation: Animal Models

Chaired by
Ernest Chu, USA. and Yog R. Ahuja, India

- 11:00 **MOUSE MODEL FOR SOMATIC MUTATION AT THE HPRT GENE: MOLECULAR AND CELLULAR ANALYSES. Irene M. Jones**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#085)
- 11:30 **DETERMINATION OF SPONTANEOUS AND ENU-INDUCED MUTANT FREQUENCIES IN CYNOMOLOGOUS MONKEYS. C. Sidney Aaron**, The Upjohn Co., Kalamazoo, MI 49001, USA.

Symposium SC02: Somatic Mutation: Human

Chaired by
David DeMarini, USA. and Bryn Bridges, United Kingdom

- 12:00 **HPRT MUTATIONS IN VIVO IN HUMAN T-LYMPHOCYTES: FREQUENCIES, SPECTRA AND CLONALITY. Richard J. Albertini**, University of Vermont, Burlington, VT 05401, USA. (#014)
- 12:30 **Lunch** - Fribley and Carlton Commons
- 1:30 **HPRT SOMATIC MUTATION DATA. Jane Cole**, (presented by Bryn Bridges), University of Sussex, BN1 9RR, UNITED KINGDOM. (#L14)
- 2:00 **HUMAN SOMATIC MUTATIONS AT THE AUTOSOMAL HLA-A LOCUS. David R. Turner**, Flinders Medical Centre, Bedford Park, S.A. 5042, AUSTRALIA. (#386)
- 2:30 **RECENT DEVELOPMENTS IN THE GLYCOPHORIN A ASSAY FOR SOMATIC CELL MUTATIONS IN HUMANS. Richard G. Langlois**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#319)
- 3:00 **ASSAY FOR SOMATIC MUTATIONS OF HUMAN HEMOGLOBINS. Luigi F. Bernini**, Institute of Human Genetics, 2333 AL Leiden, THE NETHERLANDS. (#051)
- 3:30 **COMPARISON OF CYTOGENETIC, HPRT & GLYCOPHORIN A STUDIES IN A-BOMB SURVIVORS. Mitoshi Akiyama**, Radiation Effects Research Foundation, Hiroshima, 732, JAPAN. (#013)

(Symposium SC02 continues on Tuesday, 8:00 am)

**11:00 AM - 4:00 PM, MONDAY
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS**

Symposium SD01: Oncogenes

Sponsored by the American Cancer Society, Ohio Division Inc.

Chaired by

John Laszlo, USA and Donald Anthony, USA

Opening Remarks by John Henderson, American Cancer Society

- 11:00 ONCOGENE ACTIVATION DURING MULTI-STAGE CARCINOGENESIS. **G. Tim Bowden**, University of Arizona Medical School, Tucson, AZ 85724, USA. (#L12)
- 11:30 MOLECULAR APPROACHES TO CARCINOGENESIS: ONCOGENE INDUCED TRANSFORMATION AND LINEAGE SWITCHING OF RAT LIVER EPITHELIAL CELLS. **Snorri S. Thorgeirsson**, National Cancer Institutes, Bethesda, MD 20892, USA. (#580)
- 12:00 ONCOGENE ACTIVATION IN RODENT CARCINOGENESIS. **Marshall W. Anderson**, Nat'l Inst of Environmental Health Sciences, Research Triangle Park, NC 27709, USA.
- 12:30 **Lunch** - Fribley and Carlton Commons
- 1:30 ONCOGENES AND GENOMIC STRESS. **I. Bernard Weinstein**, Columbia University, New York, NY 10032, USA.

Symposium SD02: Related Cancer Mechanisms

Sponsored by Hazelton Laboratories America and Shell Oil Company

Chaired by

Steve Haworth, USA. and Virginia Sawin, USA.

- 2:00 TUMOR SUPPRESSOR GENES IN HUMAN CANCERS. **Bernard Weissman**, University of North Carolina, Chapel Hill, NC 27599, USA.
- 2:30 ROLE OF ONCOGENES AND TUMOR SUPPRESSOR GENES IN HUMAN LUNG CARCINOGENESIS. **Curtis C. Harris**, National Cancer Inst., Bethesda, MD 20205, USA. (#238)
- 3:00 ASBESTOS ASSOCIATED MALIGNANT MESOTHELIOMA: CONSISTENT CHROMOSOMAL CHANGES IN TUMOR CELL LINES FROM SIX PATIENTS. **K.I. Linnainmaa**, Institute of Occupational Health, 00250 Helsinki, FINLAND. (#330)
- 3:30 ORGAN SPECIFIC GENOTOXICITY AND CARCINOGENICITY. **Beatrice L. Pool**, Deutsches Krebsforschungszentrum, D-6900 Heidelberg 1, W GERMANY. (#449)

(Symposium SD02 continues on Tuesday, 8:00 am)

MONDAY, 11:00 AM - 4:00 PM
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE01: Environmental Genotoxicity: Air, Water, Soil

Chaired by

John R. Meier, USA. and Urkhan Alekperov, USSR

- 11:00 **MUTAGENICITY OF DRINKING WATERS IN FINLAND. Terttu Vartiainen**, National Public Health Inst., SF-70701 Kuopio, FINLAND. (#601)
- 11:30 **MUTAGENS IN CHLORINATED WATER. John R. Meier**, U.S. Environmental Protection Agency, Cincinnati, OH 45268, USA. (#368)
- 12:00 **COMMON AND UNCOMMON INDOOR SOURCES OF MUTAGENIC AEROSOL PARTICULATE MATTER. Goran Lofroth**, Nordic School of Public Health, S-402 42 Gothenburg, SWEDEN. (#338)
- 12:30 **Lunch** - Fribley and Carlton Commons
- 1:30 **STUDY ON THE BEHAVIOR OF MUTAGENS FROM MUNICIPAL INCINERATORS BY MEANS OF AMES ASSAY. Akio Kamiya**, Nagoya City Environmental Pollution Research Institute, Chudocho Minamiku, Nagoya City, JAPAN. (#281)
- 2:00 **STUDY ON MUTAGENESIS AND CARCINOGENESIS OF PRODUCTIVE NICKEL DUST. Bao-zhen Zhong**, Chinese Environ. Mutagen Soc., Shanghai, 200003, PEOPLE'S REPUBLIC OF CHINA. (#669)

**Symposium SE02: Environmental Genotoxicity:
Plants in situ, Agriculture**

Chaired by

James Gentile, USA. and Geirid Fiskesjo, Sweden

- 2:30 **THE ACTIVATION OF PROMUTAGENS BY PLANT CELL SYSTEMS. Michael J. Plewa**, University of Illinois, Urbana, IL 61801, USA. (#447)
- 3:00 **IN SITU DETECTION OF INDUCED MUTATIONS WITH CHEMICALS BY TRADESCANTIA. Shigemitsu Tano**, University of Tokyo, Bunkyo-ku, Tokyo 113, JAPAN. (#573)
- 3:30 **IN SITU DETECTION OF GENOTOXICITY - POSSIBILITIES AND MEASUREMENTS. C.B.S.R. Sharma**, Pondicherry University, Pondicherry 605 001, INDIA. (#527)

(Symposium SE02 continues on Tuesday, 8:00 am)

TUESDAY, 8:00 AM - 12:00 PM
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

Symposium SA02: Adduction and DNA Damage (continued)

Sponsored by Xerox Corporation

Chaired by

G. Lin, USA.

- 8:00 FIDELITY OF DNA REPLICATION BY HUMAN CELL EXTRACTS IN VITRO. **John D. Roberts**, Nat'l Inst. of Environmental Health Sciences, Research Triangle Park, NC 27709, USA. (#693)
- 8:30 DNA DAMAGE STUDIED BY NMR. **Dinshaw Patel**, Columbia University, New York, NY 10025, USA.
- 9:00 IN SITU DETECTION OF DNA DAMAGE IN SINGLE CELLS OR TISSUE SECTIONS BY QUANTITATIVE IMMUNOFLUORESCENCE MICROSCOPY. **Robert A. Baan**, Medical Biological Laboratory/TNO, Rijswijk, THE NETHERLANDS. (#034)
- 9:30 THE SINGLE CELL GEL (SCG) ASSAY: A SENSITIVE TECHNIQUE FOR EVALUATING INTERCELLULAR DIFFERENCES IN DNA DAMAGE AND REPAIR. **Raymond R. Tice**, Integrated Laboratory Systems, Research Triangle Park, NC 27709, USA. (#L70)
- 10:00 **Coffee Break** - Adelbert Gym

Symposium SA03: Recombination and Gene Conversion

Chaired by

Robert C. von Borstel, Canada and David Alcantara-Diaz, Mexico

- 10:30 OVERVIEW OF RECOMBINATION AND GENE CONVERSION. **Friedrich E. Wuergler**, Institut fur Toxikologie, CH-8603 Schwerzenbach 2H, SWITZERLAND. (#642)
- 11:00 MOLECULAR MECHANISM OF GENETIC RECOMBINATION: FORMATION AND RESOLUTION OF HOLLIDAY JUNCTIONS IN VITRO. **Edward C. Conley**, Clare Hall Laboratories, Herts ENG 3LD, UNITED KINGDOM. (#114)
- 11:30 TRANSPOSITION: EFFECTS AND MECHANISMS. **David J. Galas**, Univ. of So. California, Los Angeles, CA 90089-1481, USA. (#181)

12:00 PM - 3:30 PM, TUESDAY
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

Symposium SA04: Repair: Prokaryote Mechanisms and Induction

Chaired by

Lynnette R. Ferguson, New Zealand and Celina Janion, Poland

- 12:00 INFLUENCE OF UMUC ON EMS-INDUCED MUTAGENESIS IN E. COLI DEFICIENT IN MISMATCH REPAIR. **Celina Janion**, Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, POLAND. (#270)

(Symposium SA04 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

Symposium SA04: Repair: Prokaryote Mechanisms and Induction

(continued)

Chaired by

Lynnette R. Ferguson, New Zealand and Celina Janion, Poland

- 1:30 OXIDATIVE DNA DAMAGE: REPAIR AND INDUCIBLE CELLULAR RESPONSES. **Bruce Demple**, Harvard University, Cambridge, MA 02138, USA. (#132)
- 2:00 THE SOS RESPONSE AND INDUCED MUTAGENESIS. **Graham Walker**, Massachusetts Institute of Tech., Cambridge, MA 02139, USA. (#042)
- 2:30 MECHANISMS OF CAFFEINE INHIBITION OF DNA REPAIR IN E. COLI. **Christopher P. Selby**, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, USA.

Symposium SA05: Repair: Lower Eukaryote Mechanisms

Chaired by

Herman Brockman, USA. and Luisa M. Sierra, Spain

- 3:00 CHARACTERIZATION AND EXPRESSION OF EUKARYOTIC GENES REQUIRED FOR NUCLEOTIDE EXCISION REPAIR: YEAST AS A MODEL SYSTEM. **Errol C. Friedberg**, Stanford University School of Medicine, Stanford, CA 94305, USA. (#176)

(Symposium SA05 continues Wednesday, 8:00 am)

TUESDAY, 8:00 AM - 12:00 PM
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

Symposium SB02: Metabolism: P-450 (continued)
Chaired by
Donald Hughes, USA. and Franz Oesch, W. Germany

- 8:00 HUMAN LIVER CYTOCHROME P-450PA IS PRIMARILY RESPONSIBLE FOR CAFFEINE 3-DEMETHYLATION AND CARCINOGENIC ARYLAMINE N-OXIDATION. **Fred F. Kadlubar**, Nat'l Ctr. for Toxicological Res., Jefferson, AR 72079, USA. (#089)

Symposium SB03: Metabolism
Chaired by

Daniel Casciano, USA. and Georgio Bronzetti, Italy

- 8:30 GENETIC REGULATION OF ACETYLTRANSFERASES IN THE SYRIAN INBRED HAMSTER. **David W. Hein**, Morehouse School of Medicine, Atlanta, GA 30310, USA. (#246)
- 9:00 ROLE OF METABOLISM IN BENZENE-INDUCED MYELOTOKICITY AND LEUKEMOGENESIS. **Martyn T. Smith**, Univ. of California/Berkeley, Berkeley, CA 94720, USA. (#546)
- 9:30 ① THE NEED FOR "TOXICOLOGY" IN GENETIC TOXICOLOGY: INTEGRATING METABOLIC AND GENOTOXIC STUDIES. **Marvin Legator**, University of Texas Medical Branch, Galveston, TX 77550, USA.

10:00 **Coffee Break** - Adelbert Gym

- 10:30 ② HUMAN GLUTATHIONE-S-TRANSFERASE DEFICIENCY: A PREDICTOR OF SUSCEPTIBILITY TO ARYL EPOXIDE-INDUCED CYTOGENETIC DAMAGE. **John K. Wiencke**, University of California/San Francisco, San Francisco, CA, USA. (#633)

Symposium SB04: Testing Methods

Chaired by
Verne Ray, USA. and Clara Lim-Syllanco, Philippines

- 11:00 ③ OVERVIEW OF BACTERIAL TESTING FOR MUTAGENICITY. **Stanley Venitt**, Royal Cancer Hospital, Sutton, Surrey SM2 5NG, UNITED KINGDOM. (#605)
- 11:30 BASIC PRINCIPLES AND EVALUATION OF RESULTS OF THE DROSOPHILA SMART SYSTEM. **Ekkehart W. Vogel**, State University of Leiden, 2300 RA Leiden, THE NETHERLANDS. (#L73)

12:00 PM - 3:30 PM, TUESDAY
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

- 12:00 ○ IN VITRO MAMMALIAN CELL GENOTOXICITY ASSAYS: THEIR USE AND INTERPRETATION. **Douglas B. McGregor**, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT 06877, USA. (#364)

(Symposium SB04 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

Symposium SB04: Testing Methods (continued)

Chaired by

Verne Ray, USA. and Clara Lim-Sylianco, Philippines

- 1:30 ○ OVERVIEW OF IN VIVO MAMMALIAN TESTING SYSTEMS. **Frederick Oleson**, Bristol-Myers Co., Syracuse, NY 13221, USA. (#423)

Symposium SB05: Micronuclei

Chaired by

David Blakey, Canada and Felix Romagna, Switzerland

- 2:00 Ⓞ IN VIVO ASSAYS FOR MICRONUCLEI. **John A. Heddle**, York University, Toronto, Ontario, CANADA M3J 1P3.

- 2:30 THE CYTOKINESIS BLOCK ASSAY FOR MICRONUCLEI IN NUCLEATED CELLS. **Michael Fenech**, Australian Nuclear Science and Technology Organisation, Biomedicine and Health Programme, Menai, NSW, AUSTRALIA. (#167)

- 3:00 THE MICRONUCLEUS ASSAY IN LYMPHOCYTES. **Hannu Norppa**, Inst. of Occupational Health, SF-00250 Helsinki, FINLAND. (#415)

(Symposium SB05 continues Wednesday, 8:00 am)

TUESDAY, 8:00 AM - 12:00 PM
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

Symposium SC02: Somatic Mutation: Human (continued)

Chaired by
David DeMarini, USA. and Bryn Bridges, United Kingdom

- 8:00 MULTIPLE ENDPOINTS FOR SOMATIC MUTATIONS IN HUMANS PROVIDE COMPLEMENTARY VIEWS FOR BIODIVERSITY, GENOTOXICITY AND HEALTH RISKS. **Ronald Jensen**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#271)
- 8:30 ● ROLE OF SOMATIC MUTATION IN ATHEROSCLEROSIS. **Arthur Penn**, New York University, Medical Ctr., New York, NY 10016, USA.

Symposium SC03: Heritable Mutation: Animal Models

Sponsored by Hoffman-LaRoche Inc.

Chaired by
William Russell, USA. and Jack Favor, W. Germany

- 9:00 PATTERNS OF MUTATIONAL SENSITIVITY IN POST-STEM-CELL STAGES OF MOUSE SPERMATOGENESIS AND IN ZYGOTES: THE GENERATION OF DELETION MUTANTS AND MOSAICS. **Liane B. Russell**, Oak Ridge National Laboratory, Oak Ridge, TN 37831-8077, USA. (#487)
- 9:30 MULTIPLE ENDPOINT MUTATIONAL ANALYSIS IN THE MOUSE. **Jack Favor**, Inst. fur Saugetiergenetik, GSF, D-8042 Neuherberg, W GERMANY. (#164)
- 10:00 **Coffee Break** - Adelbert Gym
- 10:30 ANALYSIS OF ELECTROPHORETICALLY DETECTED MUTATIONS IN THE MOUSE, AND COMPARISON OF THE ELECTROPHORETIC AND SPECIFIC LOCUS MUTATION RESPONSE. **Josephine Peters**, Harwell Didcot, Oxon OX11 ORD, ENGLAND. (#441)
- 11:00 THE ELECTROPHORETIC SPECIFIC LOCUS TEST IN THE MOUSE AND ANIMAL MODELS OF HUMAN DISEASE. **Susan E. Lewis**, Research Triangle Inst., Research Triangle Park, NC 27709, USA. (#325)
- 11:30 PRODUCING MOUSE MODELS FOR PHENYLKETONURIA AND HYPERPHENYLALANINEMIA USING ETHYLNITROSOUREA. **J. David McDonald**, University of Wisconsin, Madison, WI 53706, USA.

12:00 PM - 3:30 PM, TUESDAY
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

- 12:00 HETEROZYGOUS EFFECTS OF SPECIFIC LOCUS MUTATIONS. **Frederick de Serres**, Research Triangle Institute, Research Triangle Park, NC 27709-2194, USA.

(Symposium SC03 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

Symposium SC03: Heritable Mutation: Animal Models (continued)
Sponsored by Hoffman-LaRoche Inc
Chaired by
William Russell, USA. and Jack Favor, W. Germany

- 1:30 MOUSE MODELS FOR UNDERSTANDING HUMAN DEVELOPMENTAL ANOMALIES. **W. M. Generoso**, Oak Ridge National Laboratory, Oak Ridge, TN 37831-8077, USA. (#191)
- 2:00 PROTAMINES IN GERM CELL MUTAGENESIS. **Gary A. Sega**, Oak Ridge National Laboratory, Oak Ridge, TN 37831-8077, USA. (#513)
- 2:30 DETECTION OF HERITABLE MUTATIONS BY USING TWO-DIMENSIONAL ELECTROPHORESIS. **Carol S. Giometti**, Argonne National Laboratory, Argonne, IL 60439, USA. (#L22)

Symposium SC04: Heritable Mutation: Approaches to Human Induction Rates

Chaired by
Arthur Bloom, USA. and Andrew Czeizel, Hungary

- 3:00 ◊ SENTINEL AND OTHER MUTATIONAL EFFECTS IN OFFSPRING OF CANCER SURVIVORS. **John J. Mulvihill**, National Cancer Institute, Bethesda, MD 20892, USA. (#396)

(Symposium SC04 continues Wednesday, 8:00 am)

TUESDAY, 8:00 AM - 12:30 PM
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS

Symposium SD02: Related Cancer Mechanisms (continued)

Sponsored by Hazelton Laboratories America and Shell Oil Company

Chaired by

Steve Haworth, USA. and Virginia Sawin, USA.

- 8:00 ORGAN-SPECIFIC GENOTOXIC EFFECTS OF CHEMICALS: THE USE OF ALKALINE ELUTION TO DETECT DNA DAMAGE IN VARIOUS ORGANS OF IN VIVO-EXPOSED ANIMALS. **G. Brunborg**, National Institute of Public Health, Oslo, NORWAY. (#078)
- 8:30 GENOTOXICITY OF INITIATING CARCINOGENS IN THE SKIN. **R.S.U. Baker**, National Institute of Occupational Health and Safety, Sydney, Australia. (#245)
- 9:00 Speaker to be announced.
- 9:30 LEUKEMOGENIC RISK PREDICTION OF THE CYTOSTATIC TREATMENT. **Tibor Raposa**, Semmelweis University Medical School, Budapest, Eotvos u. 12. HUNGARY. (#469)
- 10:00 **Coffee Break** - Adelbert Gym

Symposium SD03: Promotion and Nongenotoxic Mechanisms

Sponsored by Sandoz Research Institute and Rohm and Haas

Chaired by

Stanley Roberts, USA. and Joseph Frank, USA.

- 10:30 Ⓞ OVERVIEW OF PROMOTION. **Frederic Burns**, New York University, Dept of Environmental Medicine, New York, NY 10016, USA.
- 11:00 Ⓞ ROLE OF ALTERED HEPATIC FOCI IN THE STAGES OF CARCINOGENESIS. **Henry C. Pitot**, Univ. of Wisconsin, Madison, WI 53706, USA. (#445)
- 11:30 THE ROLE OF PHYSIOLOGICAL METHYLATION IN CARCINOGENESIS. **Lionel Poirier**, National Ctr for Toxicological Res., Jefferson, AR 72079, USA.
- 12:00 Ⓞ THE ROLE OF CELL PROLIFERATION IN CHEMICAL CARCINOGENESIS. **Jon C. Mirsalls**, SRI International, Menlo Park, CA 94025-3493, USA. (#373)

(Symposium SD03 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:30 PM, TUESDAY
SCHMITT AUDITORIUM
TRACK D
CARCINOGENESIS

Symposium SD03: Promotion and Nongenotoxic Mechanisms

(continued)

Sponsored by Sandoz Research Institute and Rohm and Haas

Chaired by

Randolph Stoll, USA. and Joseph Frank, USA.

- 1:30 CELL PROLIFERATION AND PROMOTION IN THE HEPATO-CARCINOGENICITY OF PEROXISOME PROLIFERATING CHEMICALS. **James A. Popp**, Chemical Industry Inst. of Toxicology, Research Triangle Park, NC 27709, USA. (#451)
- 2:00 CYTOGENETIC EFFECTS OF PHORBOL ESTER TUMOR PROMOTERS: POSSIBLE ROLE IN MULTISTEP TUMORIGENESIS. **Volker Kinzel**, German Cancer Research, D-6900 Heidelberg, W. GERMANY. (#688)
- 2:30 ○ ROLE OF FREE RADICALS IN TUMOR PROMOTION. **Thomas W. Kensler**, Johns Hopkins School of Hygiene and Public Health, Baltimore, MD, 21205 USA.
- 3:00 ○ THE ROLE OF GAP JUNCTIONAL INTERCELLULAR COMMUNICATION DURING MULTISTAGE CARCINOGENESIS. **Hiroshi Yamasaki**, International Agency for Res on Cancer, 69372 Lyon Cedex 08, FRANCE. (#652)

(Symposium SD03 continues Wednesday, 8:00 am)

TUESDAY, 8:00 AM - 12:30 PM
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE02: Environmental Genotoxicity: Plants in situ, Agriculture

(continued)

Chaired by

James Gentile, USA. and Geirid Fiskesjo, Sweden

- 8:00 EFFECTS OF CHEMICAL MUTAGENESIS ON TREATING ZYGOTES IN PLANTS. **Qinnan Wang**, National Scientific Foundation, Beijing 100031, PEOPLE'S REPUBLIC OF CHINA. (#620)
- 8:30 ○ TRADESCANTIA-MICRONUCLEUS TESTS ON CLASTOGENS AND IN SITU MONITORING. **Te-Hsiu Ma**, Western Illinois University, Macomb, IL 61445, USA. (#345)
- 9:00 GENOTOXICITY OF PESTICIDES AND PLANT SYSTEMS. I. **S. Grover**, Guru Nanak Dev University, Amritsar-143005, INDIA. (#220)

Symposium SE03: Genotoxicity of Food

Chaired by

Ib Knudsen, Denmark and Keiji Wakabayashi, Japan

- 9:30 ○ IDENTIFICATION OF FOOD MUTAGENS. **Keiji Wakabayashi**, Nat'l Cancer Center Res. Inst., Tokyo 104, JAPAN. (#614)
- 10:00 **Coffee Break** - Adelbert Gym
- 10:30 ○ GENETIC TOXICOLOGY OF FOOD PRODUCTS. **H.U. Aeschbacher**, Nestle Research Centre, CH-1800 Vevey, SWITZERLAND. (#009)
- 11:00 ○ ROLE OF RECOMBINANT CYTOCHROME P4501A2 IN THE METABOLISM AND GENOTOXICITY OF FOOD DERIVED MUTAGENS. **Narayana Battula**, Nat'l Cancer Inst., Div. of Cancer Etiology, Bethesda, MD 20892, USA. (#043)
- 11:30 METABOLISM OF FOOD MUTAGENS WITH PURIFIED AND CDNA EXPRESSED CYTOCHROMES P-450. **Michael E. McManus**, Flinders Medical Center, Bedford Park 5042, SO. AUSTRALIA. (#366)
- 12:00 ○ METABOLISM OF DIETARY GENOTOXIN BY THE HUMAN COLONIC MICROFLORA. **Roger L. Van Tassell**, Virginia Polytechnic Institute, Blacksburg, VA 24061-0305, USA. (#598)

(Symposium SE03 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:30 PM, TUESDAY
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE03: Genotoxicity of Food (continued)

Chaired by

Ib Knudsen, Denmark and Keiji Wakabayashi, Japan

- 1:30 ○ METABOLISM OF HETEROCYCLIC AMINES IN COOKED FOOD. **Jan Alexander**, Nat'l Inst. of Public Health, 0462 Oslo 4, NORWAY. (#018)
- 2:00 ○ MONITORING OF FOOD MUTAGENS. **Hikoya Hayatsu**, Okayama University, Tsushima, Okayama 700, JAPAN. (#244)
- 2:30 ○ CARCINOGENESIS OF FOODS. **Ib Knudsen**, National Food Agency, 2860 Soborg (Cph), DENMARK. (#297)
- 3:30 MONOCLONAL ANTIBODY IMMUNOASSAYS FOR COOKING-INDUCED MEAT MUTAGENS. **Martin Vanderlaan**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#600)

(Symposium SE03 continues Wednesday, 8:00 am)

WEDNESDAY, 8:00 AM - 10:30 AM
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

Symposium SA05: Repair: Lower Eukaryote Mechanisms (continued)

Chaired by
Herman Brockman, USA. and Luisa M. Sierra, Spain

- 8:00 DNA REPAIR IN HIGHER PLANTS. **Karel Angelis**, Institute of Experimental Botany, Praha, CZECHOSLOVAKIA. (#603)
- 8:30 MEI-41 AND OTHER REPAIR GENES OF DROSOPHILA. **James B. Boyd**, University of California/Davis, Davis, CA 95616, USA. (#070)

**Symposium SA06: Repair: Higher Eukaryote
Mechanisms and Selection**

Sponsored by Dow Chemical and Pharmakon Research International
Chaired by

Anil Sinha, USA. and Leon Stankowski, USA.

- 9:00 SELECTIVE DNA REPAIR IN EXPRESSED GENES IN MAMMALIAN CELLS. **Philip C. Hanawalt**, Stanford University, Stanford, CA 94305, USA. (#232)
- 9:30 THE ROLE OF NUCLEAR MATRIX IN REPAIR. **Leon H.F. Mullenders**, State University of Leiden, 2333 AL Leiden, THE NETHERLANDS. (#395)
- 10:00 THE POLY (ADP-RIBOSE) POLYMERASE GENE: DIRECT OR INDIRECT INVOLVEMENT IN DNA REPAIR AND MALIGNANCY. **M. E. Smulson**, Georgetown University, Washington, DC 20007, USA. (#548)

(Symposium SA06 continues Thursday, 8:00 am)

10:30 -
12:30 **Coffee and Posters III** - Adelbert Gym

12:30 **Lunch** - Fribley and Carlton Commons

WEDNESDAY, 8:00 AM - 10:30 AM
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

Symposium SB05: Micronuclei (continued)

Chaired by
Felix Romagna, Switzerland

- 8:00 MICRONUCLEATED ERYTHROCYTES AS A MARKER OF CYTOGENETIC DAMAGE IN MAN. **James T. MacGregor**, University of California, Berkeley, CA USA. (#348)
- 8:30 ASSESSMENT OF THE MUTAGENIC EFFECT OF MATERNAL FACTORS ON HUMAN CHORIONIC VILLI BY MICRONUCLEUS TEST. **Ying-qi Cui**, National Research Institute for Family Planning, Beijing, PEOPLE'S REPUBLIC OF CHINA. (#117)

Symposium SB06: Aneuploidy

Chaired by
Vicki Dellarco, USA. and Catarina Takahashi, Brazil

- 9:00 THE CENTROMERE AND ANEUPLOIDY: DRUG-INDUCED FRAGMENTATION AND DETACHMENT OF KINETOCHORES OF MAMMALIAN CHROMOSOMES. **B.R. Brinkley**, Univ. of Alabama at Birmingham, Birmingham, AL 35294, USA. (#074)
- 9:30 ANEUPLOIDY INDUCTION BY ALKYLATED BASES AND NUCLEOSIDES IN MAMMALIAN CELLS. **A. Abbondandolo**, National Institute for Research on Cancer, Genova, ITALY. (#066)
- 10:00 THE DETECTION OF ANEUGENS USING YEASTS AND CULTURED MAMMALIAN CELLS. **James M. Parry**, Univ. College of Swansea, Swansea SA2 8PP, GREAT BRITAIN. (#438)

(Symposium SB06 continues Thursday, 8:00 am)

- 10:30 -
12:30 **Coffee and Posters III** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

WEDNESDAY, 8:00 AM - 10:30 AM
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

**Symposium SC04: Heritable Mutation: Approaches to Human
Induction Rates (continued)**

Chaired by

Arthur Bloom, USA. and Andrew Czeizel, Hungary

- 8:00 **ANALYSIS OF MULTIPLE CONGENITAL ANOMALIES (ICPEMC). Andrew Czeizel**, Nat'l. Inst. of Hygiene, Budapest, HUNGARY. (#119)
- 8:30 **APPROACHES TO DNA METHODS FOR THE DETECTION OF HERITABLE MUTATIONS IN HUMANS. Norio Takahashi**, Radiation Effects Research Foundation, Hiroshima 732, JAPAN. (#502)
- 9:00 **MUTATION ANALYSIS WITH DENATURING GRADIENT GEL ELECTROPHORESIS AND THE POLYMERASE CHAIN REACTION. Leonard S. Lerman**, Massachusetts Institute of Technology, Cambridge, MA 02140, USA.
- 9:30 **ANALYSIS OF DNA SEQUENCES IN SINGLE HUMAN SPERM. Norman Arnheim**, Univ. of So. California, Los Angeles, CA 90089, USA. (#L07)
- 10:00 **DETECTION OF GENE MUTATIONS IN MOUSE SPERM WITH POLYMERASE CHAIN REACTION (PCR). Gyula Ficsor**, Western Michigan University, Kalamazoo, MI 49008, USA. (#170)
- 10:30 -
12:30 **Coffee and Posters III** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

WEDNESDAY, 8:00 AM - 10:30 AM
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS

Symposium SD03: Promotion and Nongenotoxic Mechanisms
(continued)

Sponsored by Sandoz Research Institute and Rohm and Haas

Chaired by

Randolph Stoll, USA. and Joseph Frank, USA.

- 8:00 CELL TO CELL COMMUNICATION IN HEPATOCYTES IN VIVO. **James E. Klaunig**, Medical College of Ohio, Toledo, OH 43699, USA.
- 8:30 THE ROLE OF PROTEIN KINASE C IN SIGNAL TRANSDUCTION AND CELLULAR TRANSFORMATION. **Robert S. Krauss**, Columbia University, New York, NY 10032, USA. (#302)
- 9:00 THE POTENTIAL ROLE OF CELL DIFFERENTIATION IN TUMOR PROMOTION. **Eliezer Huberman**, Argonne National Laboratory, Argonne, IL 60439, USA. (#686)
- 9:30 THE EFFECTS OF A NON-GENOTOXIC HUMAN CARCINOGEN, DES. **John A. McLachlan**, Nat'l Inst. of Environmental Health Sciences, Research Triangle Park, NC 27709, USA.
- 10:00 LATE EFFECTS OF FEMALE SEX HORMONES. **Feng-Ming Gao**, Ministry of Public Health, Beijing, PEOPLE'S REPUBLIC OF CHINA. (#185)
- 10:30 -
12:30 **Coffee and Posters III** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

WEDNESDAY, 8:00 AM - 10:30 AM
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE03: Genotoxicity of Food (continued)

Chaired by

Ib Knudsen, Denmark and Hikoya Hayatsu, Japan

- 8:00 ON TOXICITY AND MUTAGENICITY OF CHROMIUM RICH BREWER'S YEAST. **Li-Xi Li**, Tianjin Med. College of Hygenic Toxicology, Tianjin, PEOPLE'S REPUBLIC OF CHINA. (#L35)
- 8:30 EPIDEMIOLOGIC STUDIES OF FECAL MUTAGENICITY, COOKED MEAT INGESTION, AND RISK OF COLORECTAL CANCER. **Mark H. Schiffman**, National Cancer Inst., Bethesda, MD 20892, USA. (#L60)
- 9:00 RISK ASSESSMENT OF FOOD MUTAGENS. **Leif Busk**, National Food Administration, S-75126 Uppsala, SWEDEN. (#088)

Symposium SE04: Genotoxicity of Drugs

Chaired by

Donald Clive, USA. and Jasna Franekic, Yugoslavia

- 9:30 MUTAGENICITY OF 20 CHINESE HERBS AND PHARMACEUTICALS... **Nianjun Huang**, Nat'l Inst for Control Pharm'l & Biol Product, Beijing, PEOPLE'S REPUBLIC OF CHINA. (#L28)
- 10:00 COMPARATIVE MUTAGENICITY AND GENOTOXICITY OF THE ANTIPARASITIC DRUGS, MEBENDAZOLE FLUBENDAZOLE AND AN OXIME DERIVATIVE OF FLUBENDAZOLE. **J.E. Sinsheimer**, University of Michigan, Ann Arbor, MI 48109, USA. (#198)

(Symposium SE04 continues Thursday, 8:00 am)

- 10:30 -
12:30 **Coffee and Posters III** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

THURSDAY, 8:00 AM - 10:30 AM
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

**Symposium SA06: Repair: Higher Eukaryote Mechanisms
and Selection (continued)**

Sponsored by Dow Chemical and Pharmakon Research International
Chaired by
Anil Sinha, USA. and Leon Stankowski, USA.

- 8:00 **MUTANTS DEFECTIVE IN POLY(ADP-RIBOSE) METABOLISM EXHIBIT DIVERGENT PATTERNS IN SUSCEPTIBILITY TOWARDS DIFFERENT DNA DAMAGING AGENTS. S. Chatterjee**, Case Western Reserve University, Cleveland, OH, 44106, USA. (#098)
- 8:30 **FANCONI'S ANEMIA LYMPHOBLASTS BELONGING TO GROUPS A AND B ARE HYPOMUTABLE FOLLOWING TREATMENT WITH PHOTOACTIVATED PSORALENS: RELATION TO THE PROCESSING OF DNA LESIONS. Dora Papadopoulo**, Institute Curie, 75231, Paris Cedex 05, FRANCE. (#435)
- 9:00 **INFLUENCE OF DNA EXCISION REPAIR ON UV-INDUCED MUTATION SPECTRA IN CHINESE HAMSTER CELLS. A. A. van Zeeland**, State University of Leiden, Leiden, THE NETHERLANDS
- 9:30 **HYPERSENSITIVITY TO X-RAY-INDUCED CELL KILLING AND CHROMOSOME ABERRATION INDUCTION IN XRS-5 CELLS IS ASSOCIATED WITH HYPOSENSITIVITY TO MUTATION INDUCTION AND AN ALTERATION IN CHROMATIN STRUCTURE. J.L. Schwartz**, University of Chicago Medical Center, Chicago, IL, USA.

Symposium SA07: Repair: Human Genes and Mechanisms

Chaired by
Larry Thompson, USA. and Jan Hoeijmakers, The Netherlands

- 10:00 **MOLECULAR ANALYSIS AND EVOLUTION OF EXCISION REPAIR GENES: FROM MAN TO YEAST AND REVERSE. Jan H.J. Hoeijmakers**, Erasmus Universiteit Rotterdam, 3000 DR Rotterdam, THE NETHERLANDS. (#L26)

(Symposium SA07 continues after lunch)

- 10:30 **Coffee and Posters IV** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:30 PM, 4:00 PM - 6:00 PM, THURSDAY
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

Symposium SA07: Repair: Human Genes and Mechanisms

(continued)

Chaired by

Larry Thompson, USA. and Jan Hoeijmakers, The Netherlands

- 1:30 GENETIC ANALYSIS OF HUMAN DNA REPAIR GENES. **Larry H. Thompson**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#579)
- 2:00 CLONING AND PARTIAL CHARACTERIZATION OF THE HUMAN EXCISION REPAIR GENE ERCC-5. **Mark A. MacInnes**, Los Alamos National Laboratory, Los Alamos, NM, USA. (#392)
- 2:30 XERODERMA PIGMENTOSUM, YEAST, AND HOW CELLS RECOGNIZE DAMAGED DNA. **Gilbert Chu**, Stanford University, Stanford, CA 94305, USA. (#L13)
- 3:00 MAMMALIAN DNA LIGASE I; THE MOLECULAR DEFECT IN BLOOM'S SYNDROME. **Alan A. Tomkinson**, Imperial Cancer Res Fund, South Mimms, Herts EN6 3LD, ENGLAND. (#586)
- 3:30 **Coffee** - Health Sciences Cafeteria, Medical School

Symposium SA08: Mutation: Spectra and Mechanisms

Chaired by

William Lee, USA. and Margaret Fox, United Kingdom

- 4:00 MUTATIONAL SPECIFICITY AS A WINDOW ON THE MECHANISMS OF MUTATION. **Barry W. Glickman**, York University, Toronto, Ontario, CANADA M3J 1P3. (#200)
- 4:30 ALTERED MESSAGE AND PRODUCT STUDIED IN DHFR MUTATIONS. **Lawrence Chasin**, Columbia University, New York, NY 10027, USA.
- 5:00 MOLECULAR PATTERNS OF APRT GENE REARRANGEMENTS. **Mark Meuth**, Imperial Cancer Research Fund, South Mimms, Herts. EN6 3LD, UNITED KINGDOM. (#370)
- 5:30 DNA-DAMAGE INDUCIBLE GENES IN MAMMALIAN CELLS. **Albert J. Fornace, Jr.**, National Cancer Institute, Bethesda, MD 20892, USA. PB (#172)

THURSDAY, 8:00 AM - 10:30 AM
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

Symposium SB06: Aneuploidy (continued)

Chaired by

Vicki Dellarco, USA. and Catarina Takahashi, Brazil

- 8:00 ON THE VALIDATION OF THE SYSTEM OF ASPERGILLUS FOR TESTING ENVIRONMENTAL ANEUGENS. **A. Kappas**, National Research Center "Democritus", Athens, GREECE. (#282)
- 8:30 KINETOCHORES IN MICRONUCLEI: DEVELOPMENT OF A SIMPLE AND RAPID METHOD TO IDENTIFY EXPOSURE TO ANEUPLOIDY-INDUCING AGENTS. **James D. Tucker**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#590)
- 9:00 ANEUPLOIDY STUDIES IN MAMMALS. **Ilse-Dore Adler**, GSF Institut fur Saugetiergenetik, D-8042 Neuherberg, W. GERMANY. (#008)
- 9:30 ANEUPLOIDY IN TRANSGENIC ANIMALS. **A. T. Natarajan**, State University of Leiden, Leiden, THE NETHERLANDS. (#L40)
- 10:00 A GENETIC ASSAY FOR THE DETECTION OF ANEUPLOIDY AND CLASTOGENICITY USING A MONOCHROMOSOMAL HYBRID CELL LINE. **R.S. Athwal**, New Jersey Medical School, Newark, NJ 07103, USA. (#223)
- 10:30 **Coffee and Posters IV** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:30 PM, 4:00 PM - 6:00 PM, THURSDAY
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

Symposium SB07: Chromosome Aberrations: General

Chaired by

Miriam Bloom, USA. and Jean Moutschen, Belgium

- 1:30 CYTOGENETICS: AN OVERVIEW. **H. John Evans**, Western General Hospital, Edinburgh, UNITED KINGDOM. (#L20)
- 2:00 CHROMOSOME ABNORMALITIES IN HEMATOLOGIC MALIGNANCIES. **Michelle M. LeBeau**, University of Chicago, Chicago, ILL 60637, USA. (#L34)
- 2:30 CHROMOSOME-SPECIFIC PROBES IN CYTOGENETICS. **Daniel Pinkel**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#443)

Symposium SB08: Chromosome Aberrations: Mechanisms,

Chaired by

Antone Brooks, USA. and Helena Groot de Restrepo, Columbia

- 3:00 DIRECT MEASUREMENT OF CHROMOSOME REPAIR BY PREMATURE CHROMOSOME CONDENSATION. **Walter N. Hittelman, M.D.** Anderson Hosp. & Tumor Inst., Houston, TX 77030, USA. (#254)
- 3:30 **Coffee** - Health Sciences Cafeteria, Medical School
- 4:00 GERMINAL IMPRINTING IN CHROMOSOME MUTATION. **Masao Sasaki**, Kyoto University, Kyoto 606., JAPAN. (#499)
- 4:30 RESTRICTION ENZYMES AND CYTOGENETIC DAMAGE. **William F. Morgan**, University of California/San Francisco, San Francisco, CA 94143-0750, USA. (#383)
- 5:00 THE LACK OF DNA HOMOLOGY IN PAIRS OF DNA DIVERGENT CHROMOSOMES SENSITIZES THEM TO LOSS BY DNA DAMAGE. **Michael A. Resnick**, Nat'l Institutes of Environ. Health Sciences, Research Triangle Park, NC 27709, USA. (#474)
- 5:30 FRAGILE SITE ANALYSIS AND SIGNIFICANCE. **Frederick Hecht**, Southwest Biomedical Research Inst., Scottsdale, AZ 85251, USA.

(Symposium SB08 continues Friday, 10:30 am)

THURSDAY, 8:00 AM - 10:30 AM
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

Symposium SC05: Heritable Mutation: Human Risk

Chaired by
Larry Valcovic, USA.

- 8:00 **MOUSE MUTATIONAL DATA IN THE ESTIMATION OF HUMAN RISK. Udo H. Ehling**, Inst. fur Saugetiergenetik, D-8042 Neuherberg, W. GERMANY. (#152)
- 8:30 **IONIZING RADIATION AND GENETIC RISKS: CURRENT STATUS. K. Sankaranarayanan**, State University of Leiden, NL-2333 AL Leiden, THE NETHERLANDS. (#495)

Symposium SC06: Adduction

Symposium sponsored by Merck Sharp & Dohme Research Laboratories
Chaired by
Sheila Galloway, USA. and David Phillip, United Kingdom.

- 9:00 **IMMUNOLOGIC METHODS FOR THE DETECTION OF CARCINOGEN ADDUCTS IN HUMANS. Regina H. Santella**, Columbia University, New York, NY 10032, USA. (#496)
- 9:30 **MULTIPLE APPROACHES TO THE INVESTIGATION OF AROMATIC AMINE-DNA INTERACTIONS UTILIZING ADDUCT-SPECIFIC ANTISERA. Miriam C. Poirier**, National Cancer Institute, Bethesda, MD 20892, USA. (#L56)
- 10:00 **THE ROLE OF DNA ADDUCTS IN DIESEL EXHAUST-INDUCED PULMONARY CARCINOGENESIS. James Bond**, Inhalation Toxicology Research Inst., Albuquerque, NM 87185, USA. (#L11)

(Symposium SA07 continues after lunch)

- 10:30 **Coffee and Posters IV** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:30 PM, 4:00 PM - 6:00 PM, THURSDAY
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

Symposium SC06: Adduction (continued)

Symposium sponsored by Merck Sharp & Dohme Research Laboratories
Chaired by
Sheila Galloway, USA. and David Phillips, United Kingdom

- 1:30 INVESTIGATION OF STYRENE OXIDE-DNA ADDUCTS AND THEIR DETECTION IN WORKERS EXPOSED TO STYRENE. **William J. Bodell**, University of California/San Francisco, San Francisco, CA 94143, USA. (#065)
- 2:00 HUMAN DNA ADDUCTS DUE TO SMOKING AND OTHER CARCINOGEN EXPOSURES. **David H. Phillips**, Inst. of Cancer Res., Royal Cancer Hosp., London, SW3 6JB, ENGLAND. (#442)
- 2:30 APPLICATION OF THE 32P-POSTLABELLING TECHNIQUE TO DETECT DNA-ADDUCTS FORMED BY CISPLATIN AND METHYLATING AGENTS. **Riitta Mustonen**, Institute of Occupational Health, Helsinki, FINLAND. (#399)
- 3:00 THE ROLE OF PROTEIN ADDUCTS IN THE STUDY OF CHEMICAL CARCINOGENESIS. **Paul L. Skipper**, Massachusetts Inst. of Tech., Cambridge, MA 02139, USA. (#543)
- 3:30 **Coffee** - Health Sciences Cafeteria, Medical School

Symposium SC07: Population Studies

Chaired by
Gail Littlefield, USA. and Marja Sorsa, Finland

- 4:00 COMPARISON OF HUMAN AND RODENT RESPONSE TO GENOTOXICANTS. **Dietrich Schmahl**, German Cancer Res. Ctr., D-6900 Heidelberg, W GERMANY. (#694)
- 4:30 ALCOHOL AND ALDEHYDES. **Gunter Obe**, Universitat Gesamthochschule Essen, 4300 Essen 1, W. GERMANY. (#L51)
- 5:00 ANTIOXIDANTS EFFECTS ON ALCOHOL AND OTHER ENVIRONMENTAL FACTORS. **Radim J. Sram**, Psychiatric Research Inst., 181 03 Prague 8, CZECHOSLOVAKIA. (#L65)
- 5:30 PROBLEMS IN CYTOGENETIC SURVEILLANCE OF PEOPLE. **Marja Sorsa**, Inst. of Occupational Health, SF-00290 Helsinki 29, FINLAND. (#552)

(Symposium SC07 continues Friday, 10:30 am)

THURSDAY, 8:00 AM - 10:30 AM
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS

Symposium SD04: Cell Transformation

Symposium sponsored by Procter and Gamble Company

Chaired by

Robert LeBoeuf, USA and J. Justin McCormick, USA

- 8:00 ISOLATION OF CDNAS ASSOCIATED WITH TUMOR SUPPRESSOR GENE FUNCTION IN SYRIAN HAMSTER EMBRYO CELLS. **Roger W. Wiseman**, National Inst. of Env. Health Sciences, Research Triangle Park, NC 27709, USA. (#637)
- 8:30 MALIGNANT TRANSFORMATION OF HUMAN FIBROBLASTS BY ONCOGENE TRANSFECTION OR CARCINOGENS. **J. Justin McCormick**, Michigan State University, East Lansing, MI 48824-1316, USA. (#360)
- 9:00 TRANSFORMATION IN RELATION TO ADDUCTION AND GENOTOXICITY. **J.W.I.M. Simons**, University of Leiden, 2300 RG Leiden, THE NETHERLANDS.
- 9:30 ENHANCED MORPHOLOGICAL AND MALIGNANT TRANSFORMATION OF SYRIAN HAMSTER EMBRYO CELLS CULTURED AT PH 6.70. **Robert A. LeBoeuf**, The Procter and Gamble Co., Cincinnati, OH 45239-8707, USA. (#321)
- 10:00 TRANSFORMATION WITH BALB/C-3T3 CELLS. **Edwin J. Matthews**, Hazelton Laboratories America Inc., Kensington, MD 20895, USA. (#358)

(Symposium SD04 continues after lunch)

- 10:30 **Coffee and Posters IV** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

Symposium SD04: Cell Transformation (continued)

Symposium sponsored by Procter and Gamble Company

Chaired by

Robert LeBoeuf, USA and J. Justin McCormick, USA.

- 1:30 IMPROVED METABOLIC CAPABILITY BY DRUG METABOLIZING GENE TRANSFECTION. **Robert J. Langenbach**, Nat'l Inst of Environmental Health Sciences, Research Triangle Park, NC 27709, USA. (#318)

1:30 PM - 3:30 PM, 4:00 PM - 6:00 PM, THURSDAY
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS

Symposium SD05: Short-Term Tests for Carcinogens

Symposium sponsored by Stanford Research Institute International and
Chevron Oil Company

Chaired by

Jon Mirsalis, USA. and June Carver, USA.

- 2:00 ISSUES IN THE EVALUATION OF SHORT-TERM TEST PERFORMANCE AND TESTING STRATEGIES. **Barry H. Margolin**, Univ. of North Carolina, Chapel Hill, NC 27599, USA. (#353)
- 2:30 AN INDUSTRIAL AND UK PERSPECTIVE ON SHORT-TERM TESTING. **David G. Gatehouse**, Glaxo Group Research Ltd., Ware, Herts, SQ12 ODJ, G BRITAIN. (#187)
- 3:00 STRATEGIES FOR THE IDENTIFICATION OF RODENT CARCINOGENS BY IN VITRO SHORT-TERM TESTS. **Errol Zeiger**, Nat'l Inst of Environmental Health Sciences, Research Triangle Park, NC 27709, USA. (#662)
- 3:30 **Coffee** - Health Sciences Cafeteria, Medical School
- 4:00 THE CURRENT STATUS OF GENE-TOX. **Angela Auletta**, U.S. Environmental Protection Agency, Washington, DC 20460, USA. (#678)
- 4:30 AN EVALUATION OF IN VIVO RODENT CYTOGENETIC TEST RESULTS COMPARED TO IN VITRO TESTS AND CARCINOGENICITY. **Michael D. Shelby**, Nat'l Inst of Environmental Health Sciences, Research Triangle Park, NC 27709, USA. (#533)
- 5:00 A COMPUTER ASSISTED PROCEDURE FOR THE ASSEMBLY AND ANALYSIS OF SHORT-TERM GENOTOXICITY TEST DATA. **Paul Lohman**, Univ. of Leiden, 2333 AL Leiden, THE NETHERLANDS. (#081)
- 5:30 VALUE-OF-INFORMATION ANALYSIS OF TESTING STRATEGIES. **Fanny K. Ennever**, Case Western Reserve Univ., Cleveland, OH 44106, USA. (#159)

(Symposium SD05 continues Friday, 10:30 am)

THURSDAY, 8:00 AM - 10:30 AM
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE04: Genotoxicity of Drugs (continued)

Chaired by
Donald Clive, USA. and Jasna Franekic, Yugoslavia

- 8:00 **SCHISTOSOMIASIS DRUGS: AN ICPEMC STUDY. Pieter G.N Kramers**, Nat'l Inst of Public Health/Env. Hyg., NL-3720 BA Bilthoven, THE NETHERLANDS. (#301)
- 8:30 **CYTOGENETIC STUDY OF GOSSYPOL ACETATE. Yongbu Tan**, Shanghai Institute Planned Parenthood Research, Shanghai, PEOPLE'S REPUBLIC OF CHINA. (#572)

Symposium SE05: Genotoxicity of Complex Mixtures

Chaired by
Gary Flamm, USA. and Hidetsuru Matsushita, Japan

- 9:00 **GENETIC TOXICOLOGY OF COMPLEX MIXTURES--OVERVIEW AND SUMMARY OF THE WASHINGTON SATELLITE MEETING. Michael Waters**, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, USA. (#696)
- 9:30 **MUTAGENICITY OF BURNT GUN PROPELLANTS. James S. Felton**, Lawrence Livermore National Laboratory Livermore, CA 94550, USA. (#166)

Symposium SE06: Assessment of Genotoxicity

Chaired by
George Douglas, Canada and Shigeaki Sato, Japan

- 10:00 **GENOTOXICITY OF NEW JAPANESE CHEMICALS. Taijiro Matsushima**, Univ. of Tokyo, Shirokanedai, Minato-ku, Tokyo 10, JAPAN.

(Symposium SE06 continues after lunch)

- 10:30 **Coffee and Posters IV** - Adelbert Gym
- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:30 PM, 4:00 PM - 6:00 PM, THURSDAY
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE06: Assessment of Genotoxicity (continued)

Chaired by
George Douglas, Canada and Shigeaki Sato, Japan

- 1:30 ASSESSMENT OF EXPOSURE AND POTENTIAL RISK FROM MUTAGENIC AIR POLLUTANTS. **Joellen Lewtas**, U.S. Environmental Protection Agency, Research Triangle Park, NC 27709, USA. (#689)
- 2:00 THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S INTEGRATED RISK INFORMATION SYSTEM. **Rita Schoeny**, U.S. Environmental Protection Agency, Cincinnati, OH 45268, USA. (#440)

Symposium SE07: Genotoxicity and Developing Countries

Chaired by
Mo Quian Yin, People's Republic of China and Angelo Carere, Italy

- 2:30 ENVIRONMENTAL MUTAGENESIS RESEARCH IN DEVELOPING COUNTRIES. **N.K. Notani**, Bhabha Atomic Research Centre, Bombay - 400 085, INDIA. (#416)
- 3:00 ENVIRONMENTAL MUTAGENESIS IN DEVELOPING COUNTRIES. **Cristina Cortinas De Nava**, Inst. de Investigaciones Biomedicas, Mexico City, D.F. 04510, MEXICO. (#680)
- 3:30 **Coffee** - Health Sciences Cafeteria, Medical School
- 4:00 ENVIRONMENTAL MUTAGENESIS IN THAILAND. **Wanee Rojanapo**, National Cancer Institute, Bangkok 10400, THAILAND. (#L58)
- 4:30 THE LAW OF GENOTOXICITY PREVENTION: A PROJECT PREPARED BY SCIENTISTS & POLITICIANS IN THE PROVINCE OF BUENOS AIRES, ARGENTINA. **F.N. Dulout**, Instituto Multidisciplinario, 1900 La Plata, ARGENTINA.
- 5:00 ENVIRONMENTAL MUTAGENESIS IN CHINA. **Jerry L. Hsueh**, Fudan University, Shanghai 200433, PEOPLE'S REPUBLIC OF CHINA. (#685)

1:30 PM - 3:30 PM, 4:00 PM - 6:00 PM, THURSDAY
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE08: Modulation of Genotoxicity

Chaired by

Delbert Shankel, USA. and Silvio De Flora, Italy

D. Anderson

5:00

5:30

MECHANISMS OF INHIBITORS OF GENOTOXICITY. RELEVANCE IN PREVENTIVE MEDICINE. **Silvio De Flora**, University of Genoa, I-16132 Genoa, ITALY. (#125)

(Symposium SE08 continues Friday, 10:30 am)

FRIDAY, 8:00 AM - 12:30 PM
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

8:00 **IAEMS Business Meeting** - Strosacker Auditorium

9:00 **EMS Business Meeting** - Strosacker Auditorium

10:00 **Coffee Break** - Strosacker Auditorium

Symposium SA09: Mutation: Shuttle Vectors

Chaired by
Anthony Carrano, USA. and Alain Sarasin, France

10:30 ULTRA-VIOLET INDUCED MUTATION SPECTRA ON SIMIAN VIRUS 40 GENES AFTER DNA TRANSFECTION OR VIRUS INFECTION. **Alain Sarasin**, Inst. de Rech Scientifiques sur le Cancer, 94802 Villejuif, FRANCE. (#498)

11:00 ANALYSIS OF MUTATION INDUCTION IN VIVO AND IN VITRO WITH AN SV40-BASED SHUTTLE VECTOR. **Kathleen Dixon**, Natl. Inst. of Child Health & Human Development, Bethesda, MD 20892, USA. (#138)

11:30 THE SUP4-O SYSTEM FOR ANALYSIS OF MUTATIONAL SPECIFICITY IN YEAST. **Bernard A. Kunz**, The University of Manitoba, Winnipeg, Manitoba, CANADA R3T 2N2. (#310)

Symposium SA10: Mutation: Transgenic Animals

Chaired by
Heinrich Malling, USA. and Eun-Ho Park, Korea

12:00 TRANSGENIC MICE AS A MODEL SYSTEM FOR STUDYING GENE MUTATIONS IN VIVO. **Jan A. Gossen**, TNO Inst Exp Gerontology, 2280 HV Rijswijk, THE NETHERLANDS. (#681)

(Symposium SA10 continues after lunch)

12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:00 PM, 3:30 PM - 5:00 PM, FRIDAY
STROSACKER AUDITORIUM
TRACK A
BASIC MECHANISMS

Symposium SA10: Mutation: Transgenic Animals (continued)

Chaired by
Heinrich Malling, USA. and Eun-Ho Park, Korea

- 1:30 THE USE OF LAMBDA PHAGE SHUTTLE VECTORS IN TRANSGENIC MICE FOR DEVELOPMENT OF A SHORT TERM MUTAGENICITY ASSAY. **Jay M. Short**, Stratagene, Inc., La Jolla, CA 92037, USA. (#300)
- 2:00 TRANSGENIC ANIMALS EXPRESSING THE BACTERIAL O6ALKYLGUANINE-DNA ALKYLTRANSFERASE GENE: A MODEL TO STUDY THE ROLE OF DNA REPAIR IN THE CARCINOGENESIS OF N-NITROSO COMPOUNDS. **S.L. Gerson**, Ireland Cancer Center, Case Western Reserve University, Cleveland, OH, 44106, USA. (#148)

Symposium SA11: New Methods: Polymerase Chain Reaction

Symposium sponsored by Microbiological Associates
and E.I. DuPont De Nemours
Chaired by

David Jacobson-Kram, USA. and Awni Sarrif, USA.

- 2:30 AMPLIFICATION OF MRNA OF THE HPRT GENE FROM LYSATES OF MUTANT HUMAN CELLS AND DIRECT DNA SEQUENCING TO DETERMINE THE SPECTRA OF MUTATIONS INDUCED BY CARCINOGENS. **Veronica M. Maher**, Michigan State University, East Lansing, MI 48824-1316, USA. (#349)
- 3:00 **Coffee Break** - Strosacker Auditorium
- 3:30 MEASUREMENT OF MUTATIONAL SPECTRA IN HUMAN TISSUES. **William G. Thilly**, Massachusetts Inst. of Tech., Cambridge, MA 02139, USA. (#577)
- 4:00 ULTRARAPID ANALYSIS OF MAMMALIAN MUTATIONS. **Kenneth Tindall**, Nat'l Institutes of Env. Health Institutes, Research Triangle Park, NC 27709, USA.
- 4:30 SCREENING FOR BASE MUTATIONS IN THE HPRT AND PAH LOCUS USING THE POLYMERASE CHAIN REACTION (PCR) IN COMBINATION WITH DENATURING GRADIENT GEL ELECTROPHORESIS (DGGE). **A.-L. Borresen**, Institute of Cancer Research, The Norwegian Radium Hospital, Oslo, NORWAY. (#069)

FRIDAY, 8:00 AM - 12:30 PM
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

8:00 **IAEMS Business Meeting** - Strosacker Auditorium

9:00 **EMS Business Meeting** - Strosacker Auditorium

10:00 **Coffee Break** - Strosacker Auditorium

Symposium SB08: Chromosome Aberrations: Mechanisms (continued)

Chaired by

Antone Brooks, USA. and Helena Groot de Restrepo, Columbia

10:30 **MECHANISMS OF CHROMOSOME ABERRATION. John R.K. Savage**, MRC Radiobiology Unit, Chilton, Oxon, OX11 ORD., UNITED KINGDOM. (#503)

11:00 **ADAPTATION OF HUMAN LYMPHOCYTES TO RADIATION OR CHEMICAL MUTAGENS: A CASE OF INDUCED CYTOGENETIC REPAIR. Sheldon Wolff**, University of California/San Francisco, San Francisco, CA 94143-0750, USA. (#639)

11:30 **CYTOGENETIC AND BIOCHEMICAL STUDIES IN HOMO- AND HETEROZYGOTES OF ATAXIA TELANGIECTASIA. Andrzej L. Pawlak**, Polish Academy of Sciences, 60-479 Poznan, POLAND. (#L55)

12:00 **MICRODOSIMETRY, LET AND CHROMOSOMAL ABERRATIONS. Charles R. Geard**, Columbia University, New York, NY 10032, USA. (#189)

(Symposium SB08 continues after lunch)

12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:00 PM, 3:30 PM - 5:00 PM, FRIDAY
E301 LECTURE ROOM, MEDICAL SCHOOL
TRACK B
METABOLISM, TESTING METHODS, CHROMOSOMES

Symposium SB08: Chromosome Aberrations: Mechanisms

(continued)

Chaired by

Anthony Brooks, USA. and Helena Groot de Restrepo, Columbia

- 1:30 CHROMOSOME INSTABILITY ASSOCIATED WITH HUMAN REPETITIVE SEQUENCES AND DNA AMPLIFICATION. **Michael W. Heartlein**, Transkaryotic Therapies Inc., Cambridge, MA 02139, USA. (#L23)

Symposium SB09: Chromosome Aberrations: Germinal

Chaired by

Mary Ester Gauden, USA. and Motoi Ishidate, Japan

- 2:00 HUMAN SPERM CHROMOSOMES: ANALYSIS OF STRUCTURAL ABERRATIONS AND DNA REPLICATION. **Brigitte F. Brandriff**, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA. (#072)
- 2:30 HUMAN SPERM CHROMOSOME COMPLEMENTS: EFFECTS OF DONOR AGE, FREEZING AND SEGREGATION IN TRANSLOCATION AND INVERSION CARRIERS. **Renee H. Martin**, Alberta Children's Hospital, Calgary, Alberta T2T 5C7, CANADA. (#354)
- 3:00 **Coffee Break** - Health Sciences Cafeteria, Medical School
- 3:30 SPONTANEOUS AND IN VITRO RADIATION-INDUCED CHROMOSOME ABERRATIONS IN HUMAN SPERMATOZOA: APPLICATION OF A NEW METHOD. **Kazuya Mikamo**, Asahikawa Medical College, Asahikawa 078-11, JAPAN. (#372)
- 4:00 STAGE-SPECIFIC SYNAPTONEMAL COMPLEX AND CHROMOSOME DAMAGE INDUCED BY X-RAYS IN MALE MOUSE GERM CELLS. **Lorraine C. Backer**, U.S. Environmental Protection Agency, Research Triangle Park, NC 27709, USA. (#036)
- 4:30 OCCUPATIONAL AND LIFE STYLE FACTORS IN CHROMOSOMAL ABERRATIONS OF SPONTANEOUS ABORTUSES. **Inger-Lise Hansteen**, Telemark Central Hospital, Dept of Occupational Medicine, N-3900 Porsgrunn, NORWAY.

FRIDAY, 8:00 AM - 12:30 PM
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

8:00 **IAEMS Business Meeting** - Strosacker Auditorium

9:00 **EMS Business Meeting** - Strosacker Auditorium

10:00 **Coffee Break** - Strosacker Auditorium

Symposium SC07: Population Studies (continued)

Chaired by

Gail Littlefield, USA. and Jaime Descailleaux, Peru

10:30 EVALUATION OF THE EFFECTS OF CHERNOBYL IN WESTERN EUROPE. **Philippe De Wals**, Eurocat Ecole de Sante, B-1200 Brussels, BELGIUM. (#128)

Symposium SC08: Workplace Studies

Chaired by

Dale Matheson, USA. and F. Geeta Talukder, India

11:00 SISTER CHROMATID EXCHANGES INDUCED IN PERIPHERAL LYMPHOCYTES OF WORKERS EXPOSED TO LOW CONCENTRATIONS OF STYRENE. **Janice W. Yager**, University of California/Berkeley, Berkeley, CA 94720, USA. (#651)

11:30 A NORDIC PROSPECTIVE STUDY ON THE RELATIONSHIP BETWEEN PERIPHERAL LYMPHOCYTE CHROMOSOME DAMAGE AND CANCER MORBIDITY IN OCCUPATIONAL GROUPS. STUDY DESIGN AND CYTOGENETIC RESULTS. **Christina Reuterwall**, National Institutes of Occupational Health, Solna, SWEDEN.

12:00 HUMAN GENOTOXICITY IN PHOSPHINE-EXPOSED APPLICATORS. **Vincent F. Garry**, University of Minnesota, Minneapolis, Minn 55414, USA. (#186)

(Symposium SC08 continues after lunch)

12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:00 PM, 3:30 PM - 5:00 PM, FRIDAY
E401 LECTURE ROOM, MEDICAL SCHOOL
TRACK C
EPIDEMIOLOGY AND RELATED ANIMAL STUDIES

Symposium SC08: Workplace Studies (continued)

Chaired by

Dale Matheson, USA. and F. Geeta Talukder, India

- 1:30 Speaker to be announced.
- 2:00 COMPARISON OF IN VIVO SOMATIC CELL MUTATION, CHROMOSOME ABERRATION, SISTER CHROMATID EXCHANGE, MICRONUCLEI FORMATION AND URINE MUTAGENICITY IN STEEL FOUNDRY WORKERS. **Darrell J. Tomkins**, McMaster University, Hamilton, Ontario L8N3Z5, CANADA. (#585)
- 2:30 BIOMONITORING OF INDIVIDUALS OCCUPATIONALLY EXPOSED TO AROMATIC AMINES. **L. R. Ribeiro**, Universidade Federal da Bahia, Salvador, BRASIL. (#475)
- 3:00 **Coffee Break** - Health Sciences Cafeteria, Medical School
- 3:30 A CYTOGENETIC STUDY IN CARBON BLACK EXPOSED INDIVIDUALS OF TYRE INDUSTRY. **P.P. Babu**, Osmania University, Hyderabad-500 007, INDIA. (#035)
- 4:00 THE DETECTION OF MUTAGENICITY OF CHEMICAL FACTORS IN INDUSTRY. **Nikolai P. Bochkov**, Institute of Medical Genetics, Moscow, U.S.S.R. (#064)
- 4:30 ETHICS AND THE ALLOCATION OF RISK: SCIENCE AND VALUES. **Thomas H. Murray**, Case Western Reserve Univ., Cleveland, OH 44106, USA. (#398)

FRIDAY, 8:00 AM - 12:30 PM
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS

- 8:00 **IAEMS Business Meeting** - Strosacker Auditorium
- 9:00 **EMS Business Meeting** - Strosacker Auditorium
- 10:00 **Coffee Break** - Strosacker Auditorium

Symposium SD05: Short-Term Tests for Carcinogens (continued)
Sponsored by Stanford Research Institute International and Chevron Oil
Company
Chaired by
Jon Mirsalis, USA. and June Carver, USA.

- 10:30 **PREDICTING CARCINOGENIC POTENCY: THE USE OF A BATTERY OF GENOTOXIC AND ACUTE TOXICITY ASSAY RESULTS.**
Samantha Richter Pack, Oak Ridge National Laboratory, Oak Ridge, TN 37830, USA. (#432)

Symposium SD06: Species Extrapolation of Carcinogenicity and Mutagenicity
Chaired by
Byron Butterworth, USA. and Daniel Krewski, USA.

- 11:00 **SPECIES COMPARISONS REGARDING COMPARATIVE METABOLISM OF TWO STRUCTURALLY SIMILAR NITRO-PHENYLENEDIAMINES (HC BLUE 1 AND HC BLUE 2).** **Frank Kari**, Nat'l Inst. of Environmental Health Sciences, Research Triangle Park, NC 27709, USA. (#283)
- 11:30 **COMPARATIVE BIOLOGY OF TEST SPECIES.** **Edward J. Calabrese**, University of Massachusetts, Amherst, MA 01007, USA.
- 12:00 **COMPARATIVE QUANTITATIVE CARCINOGENESIS.** **Daniel Krewski**, Carlton University, Ottawa Ontario, CANADA K1A.

(Symposium SD06 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:00 PM, 3:30 PM - 5:00 PM, FRIDAY
SCHMITT LECTURE HALL
TRACK D
CARCINOGENESIS

**Symposium SD06: Species Extrapolation of Carcinogenicity
and Mutagenicity (continued)**

Chaired by
Byron Butterworth, USA. and Gary Williams, USA.

- 1:30 SPECIES EXTRAPOLATION BY PHYSIOLOGIC MODELLING.
Rory Conolly, NSI Technology Service Corp., Dayton, OH
45433, USA.
- 2:00 COMBINED IN VIVO DNA BINDING AND TUMOR DOSE-
RESPONSE STUDIES TO INVESTIGATE THE MOLECULAR
DOSIMETRY CONCEPT. **Roderick Dashwood**, Oregon State
University, Corvallis, OR 97331, USA. (#122)

Symposium SD07: Rapid Screen for Genotoxicity

Chaired by Robert Naismith, USA. and Donald MacPhee, Australia

- 2:30 EVALUATION OF THE BIOLUMINESCENCE ASSAYS AS
SCREENS FOR GENOTOXIC CHEMICALS. **Eugene Elmore**,
NSI Technology Services Corp., Research Triangle Park, NC
27709, USA. (#158)
- 3:00 **Coffee Break** - Health Sciences Cafeteria, Medical School
- 3:30 AUTOMATION OF SCREENING ASSAYS FOR DNA DAMAGING
AGENTS WHICH INDUCE THE SOS RESPONSE. **Rosalie K.
Elespuru**, National Cancer Institute Frederick, MD 21701,
USA. (#L19)
- 4:00 ELECTROPHILICITY OF NONGENOTOXIC CARCINOGENS
AND GENOTOXIC NONCARCINOGENS AS MEASURED BY THE
KE TEST. **George Bakale**, Case Western Res. Univ., Cleveland,
OH, 44106, USA. (#038)
- 4:30 SCREENING WITH DNA PROBES TO SPECIFIC SEQUENCES.
Thomas A. Cebula, Food & Drug Administration, Washington,
DC 20204, USA. (#094)

FRIDAY, 8:00 AM - 12:30 PM
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

- 8:00 **IAEMS Business Meeting**
- 9:00 **EMS Business Meeting**
- 10:00 **Coffee Break** - Strosacker Auditorium

Symposium SE08: Modulation of Genotoxicity (continued)

Chaired by
Delbert Shankel, USA. and Silvio De Flora, Italy

- 10:30 **CHEMOPREVENTION OF GENOTOXICITY IN VIVO. Lee Wattenberg**, University of Minnesota, Minneapolis, MN 55455, USA. (#697)
- 11:00 **NATURALLY OCCURRING, IMIDAZOLE-CONTAINING ANTI-MUTAGENS: ERGOTHIONEINE AND CARNOSINE. Philip E. Hartman**, The Johns Hopkins University, Baltimore, MD 21218, USA. (#240)
- 11:30 **REVERSION OF CANCER PHENOTYPES BY ALTERATIONS IN GENOTYPE. Minako Nagao**, National Cancer Center Research Institute, Tokyo 104, JAPAN. (#691)
- 12:00 **URINARY BIOMARKERS OF ENDOGENOUS DNA DAMAGE. Michael G. Simic**, National Institute of Standards and Technology, Gaithersburg, MD 20899, USA. (#050)

(Symposium SE08 continues after lunch)

- 12:30 **Lunch** - Fribley and Carlton Commons

1:30 PM - 3:00 PM, 3:30 PM - 5:00 PM, FRIDAY
E501 LECTURE ROOM, MEDICAL SCHOOL
TRACK E
ENVIRONMENTAL GENOTOXICITY, RISK AND MODULATION

Symposium SE08: Modulation of Genotoxicity (continued)

Chaired by
Delbert Shankel, USA. and Silvio De Flora, Italy

- 1:30 INHIBITION OF RADIOGENIC TRANSFORMATION BY B-LAPACHONE. **David A. Boothman**, Dana-Farber Cancer Inst., Boston, MA 02115, USA. (#067)
- 2:00 ANTIMUTAGENICITY OF CHINESE MEDICINES. **Zuoshu Jiang**, Dept. Biol., 2nd Military Medical University, Shanghai, PEOPLE'S REPUBLIC OF CHINA. (#273)
- 2:30 DIET AS A SOURCE OF INHIBITORS OF MUTAGENESIS. **P. S. Chauhan**, Bhabha Atomic Res. Centre, Bombay - 400-085, INDIA. (#679)
- 3:00 **Coffee Break** - Health Sciences Cafeteria, Medical School
- 3:30 MODULATION OF GENOTOXIC EFFECTS IN HUMANS. **Miriam P. Rosin**, Simon Fraser University, Burnaby, B.C., CANADA. (#482)
- 4:00 EFFECT OF OXYGEN AND ANTIOXIDANTS ON CHO CELLS AND RAT EMBRYOS IN CULTURE. **Diana Anderson**, British Ind. Biol. Res. Association, Surrey SM5 4DS, U K. (#021)
- ~~4:30~~ DT DIAPHORASE AND THE METABOLISM OF POTENTIAL MUTAGENS AND CARCINOGENS. **Paul Hochstein**, Univ of Southern California, Los Angeles, CA 90033, USA. (#L24)

8:00 am - 12:30 pm, Saturday, July 15, 1989
CLOSING CEREMONY

Strosaker Auditorium

INTRODUCTIONS

Frederick J. de Serres
Chairman, National Organizing Committee

Closing Plenary: Where Are We Going?

Chaired by
Mortimer L. Mendelsohn
Chairman, Scientific Program

- 8:00 **BASIC MECHANISMS OF ENVIRONMENTAL MUTAGENESIS. Bryn A. Bridges**, University of Sussex, Falmer, BN1 9RR Brighton, ENGLAND. (#073)
- 8:30 **CYTOGENETICS IN ENVIRONMENTAL MUTAGENESIS. R. Julian Preston**, Oak Ridge National Laboratory, Oak Ridge, TN, 37831, USA. (#454)
- 9:00 **SOMATIC MUTATIONS. Alec A. Morley**, Flinders Medical Centre, Bedford Park, S.A., AUSTRALIA. (#386)
- 9:30 **HUMAN CARCINOGENESIS AND ENVIRONMENTAL MUTAGENS. Takashi Sugimura**, National Cancer Center, Tokyo, JAPAN. (#L66)
- 10:00 **Coffee** - Strosacker Auditorium, Lobby/Outside
- 10:30 **FUTURE DEVELOPMENT OF SHORT TERM TESTS. John Ashby**, ICI, Central Toxicology Laboratory, Alderley Park, Cheshire, ENGLAND. (#030)
- 11:00 **MODULATION OF GENOTOXICITY. Claes Ramel**, University of Stockholm, S-106 91 Stockholm, SWEDEN. (#464)
- 11:30 **MUTAGENESIS AND CARCINOGENESIS: ENDOGENOUS AND EXOGENOUS FACTORS. Bruce N. Ames**, University of California /Berkeley, Berkeley, CA, 94720 USA. (#L04)

12:00 PM

CLOSING REMARKS

Newly Elected President

International Association of Environmental Mutagen Societies

R. Julian Preston

President, Environmental Mutagen Society

1:30 - 6:00

EMS Council

School of Medicine
- WG-23