Genes and the Environment: From Molecular Mechanisms to Risk

Puerto Rico!
39th Annual Meeting
Program

Wyndham Rio Mar
Rio Grande, Puerto Rico
October 18–22, 2008

Program Chair: Priscilla K. Cooper, Ph.D.
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FRIDAY, OCTOBER 17, 2008

3:00 PM–5:00 PM RIO MAR ATRIUM
Registration

SATURDAY, OCTOBER 18, 2008

8:00 AM–6:00 PM RIO MAR ATRIUM
Registration

10:00 AM–12:30 PM BOARDROOM
EMS Executive Board Meeting

1:00 PM–4:30 PM PARROT
EMS Council Meeting

1:30 PM–4:30 PM RIO MAR 7–8
SATURDAY WORKSHOP—Omics Applications and Impacts on Genotoxicity Assessment

4:45 PM–6:00 PM RIO MAR 9–10
Mentoring Workshop

6:00 PM–8:00 PM RIO MAR 5
Student and New Investigator Poster Session and Welcome Reception

SUNDAY, OCTOBER 19, 2008

7:00 AM–6:00 PM RIO MAR ATRIUM
Registration

7:30 AM–9:00 AM BREAKFAST MEETINGS
DNA Repair SIG CARIBBEAN 1
Epigenetics SIG CARIBBEAN 2
Transgenic & In Vivo Mutagenesis SIG CARIBBEAN 3

9:00 AM–12:00 NOON RIO MAR 6
SYMPOSIUM 1—Transcription Meets DNA Damage
Rio Grande, Puerto Rico • October 18–22, 2008

9:00 AM–12:00 NOON RIO MAR 7–8
SYMPOSIUM 8—Formaldehyde and Leukemia: Epidemiology, Potential Mechanisms, and Implications for Risk Assessment

9:00 AM–12:00 NOON RIO MAR 9–10
SYMPOSIUM 9—Methylphenidate Treatment of ADHD: Are Pediatric Patients at Risk of Induced Genetic Damage?

12:00 NOON–1:30 PM RIO MAR 1–5
BUFFET LUNCH WITH EXHIBITORS

1:30 PM–4:00 PM RIO MAR 1–5
COMMITTEE MEETINGS
1:30 PM–2:30 PM Awards Committee BOARDROOM
1:30 PM–2:30 PM Hollaender Committee PARROT
3:00 PM–4:00 PM Public Relations and Communications Committee PARROT
3:00 PM–4:00 PM Publications Policy Committee HERON

4:00 PM–6:00 PM RIO MAR 9–10
PLATFORM SESSION 1—Mutagenic and Carcinogenic Mechanisms

4:00 PM–6:15 PM RIO MAR 10–DNA Damage in Neurodegeneration, Aging, and Cancer

4:00 PM–6:15 PM RIO MAR 7–8
SYMPOSIUM 11—New Perspectives and Issues Emerging from 30 Years of Research on Drinking Water Disinfection By-Products

7:30 PM–8:30 PM RIO MAR 6
PLENARY LECTURE—Aging and Cancer: Are Telomeres and Telomerase the Connection? Jerry W. Shay, University of Texas Southwestern Medical Center

8:30 PM–10:30 PM RIO MAR 1–5
POSTER SESSION 2 AND EXHIBITS
[Even Numbered Abstracts Attended]

TUESDAY, OCTOBER 21, 2008

8:00 AM–11:30 AM RIO MAR ATRIUM
Registration

7:00 AM–8:30 AM RIO MAR 6
BREAKFAST MEETINGS
EMS Executive Board Meeting PARROT
Molecular Epidemiology SIG CARIBBEAN 1
Risk Assessment SIG CARIBBEAN 3

8:30 AM–10:30 AM RIO MAR 7–8
SYMPOSIUM 12—The U-Shaped Curve: When More is Not Better

8:30 AM–10:30 AM RIO MAR 6
SYMPOSIUM 13—Low Dose Radiation-Induced Genome and Epigenome Instability

8:30 AM–10:30 AM RIO MAR 9–10
PLATFORM SESSION 2—DNA Repair and Damage Responses

10:45 AM–11:45 AM RIO MAR 6
PLENARY LECTURE—Unraveling Genetic Regulatory Networks of Mammalian Retroelements
Kenneth S. Ramos, University of Louisville

11:45 AM–1:15 PM RIO MAR 6
EMS Business Meeting

1:15 PM–7:30 PM RIO MAR 6
OPEN AFTERNOON

2:00 PM–6:30 PM MAIN LOBBY
Optional Tour to Old San Juan—Separate Registration Required
Meet in the Main Lobby at 1:45 PM

7:30 PM–11:30 PM RIO MAR 1–5
SOCIETY BANQUET AND EMS AWARDS PRESENTATION
Awards Presentation by President Andrew J. Wyrobek
Alexander Hollaender Award
EMS Award
EMS Service Award

WEDNESDAY, OCTOBER 22, 2008

8:00 AM–12:00 NOON RIO MAR ATRIUM
Registration

7:30 AM–9:00 AM RIO MAR 7–8
MORNING MEETINGS
2009 Program Committee (2nd meeting) CARIBBEAN 1
Town Hall Meeting CARIBBEAN 3

9:00 AM–11:00 AM RIO MAR 7–8
PLATFORM SESSION 3—Epigenetic Mechanisms: Damage-Induced Epigenome Changes

9:00 AM–9:50 AM RIO MAR 6
TOPOICAL REVIEW 1—Functional Approaches in Studying Inter-Individual Variability of DNA Repair and Cancer Risk
Tamar Paz-Elizur, Weizmann Institute of Science, Israel

10:00 AM–10:50 AM RIO MAR 6
TOPOICAL REVIEW 2—Repair of Ionizing Radiation-Induced DNA Double-Strand Breaks: Complex Pathways for Complex Lesions
Susan Lees-Miller, University of Calgary, Alberta, Canada

11:00 AM–12:00 NOON RIO MAR 6
PLENARY LECTURE—Somatic Cell Genetics Fostered DNA Repair
Larry H. Thompson, Lawrence Livermore National Laboratory

1:15 PM–3:15 PM RIO MAR 10–Spontaneous and Oxidative Mutagenesis In Vivo

1:15 PM–3:15 PM RIO MAR 7–8
SYMPOSIUM 15—Development of Novel, Rapid, and Portable Environmental Detection Methods

3:15 PM–5:20 PM RIO MAR 6
SYMPOSIUM 16—Epigenetic Mechanisms, DNA Repair, and Chromatin

3:15 PM–5:20 PM RIO MAR 7–8
SYMPOSIUM 17—Environmental Exposures and Carcinogenic Risk

6:00 PM–8:00 PM RIO MAR 4
EMS Council Meeting
39th Annual Meeting of the Environmental Mutagen Society

EMS Officers

Andrew J. Wyrobek, Ph.D., President
Lawrence Berkeley National Laboratory

Barbara S. Shane, Ph.D., Treasurer
National Institute of Environmental Health Sciences, NIH

Priscilla K. Cooper, Ph.D., President-Elect
Lawrence Berkeley National Laboratory

Suzanne M. Morris, Ph.D., Secretary
National Center for Toxicologic Research, U.S. FDA

Martina L. Veigl, Ph.D., Past President
Case Western Reserve University

Tonia M. Masson, Executive Director

EMS Councilors 2008–2011

Glenda J. Gentile (2008)
Catherine B. Klein, Ph.D. (2008)
Veronique T. Thybaud, Ph.D. (2008)
Marilyn J. Aardema, Ph.D. (2009)
P.J. Brooks, Ph.D. (2009)

Peter M. Glazer, M.D., Ph.D. (2009)
John A. Tainer, Ph.D. (2009)
James P. Carney, Ph.D. (2010)
Patricia Ostrosky-Wegman, Ph.D. (2010)

Randy L. Jirtle, Ph.D. (2011)
Olga Kovalchuk, Ph.D. (2011)
Ofelia A. Olivero, Ph.D. (2011)
Karen M. Vasquez, Ph.D. (2011)

Program Committee

Priscilla K. Cooper, Ph.D., Chair
Sylvette Ayala-Torres, Ph.D.
Stefano Bonassi, Ph.D.
Matthew A. Coleman, Ph.D.
David M. DeMarini, Ph.D.
Paul Doetsch, Ph.D.
Rosalie K. Elespuru, Ph.D.
Bevin P. Engelward, Sc.D.
Glenda J. Gentile
Kathleen A. Hill, Ph.D.
Nina T. Holland, Ph.D.
Nagu Keshava, Ph.D.

Olga Kovalchuk, Ph.D.
Mats Ljungman, Ph.D.
Brinda Mahadevan, Ph.D.
Suzanne M. Morris, Ph.D.
Laura J. Niedernhofer, M.D., Ph.D.
Takehiko Nohmi, Ph.D.
Patricia L. Opresko, Ph.D.
Barbara L. Parsons, Ph.D.
Tamar Paz-Elizur, Ph.D.
Janice M. Pluth, Ph.D.
Leona D. Samson, Ph.D.
W. David Sedwick, Ph.D.

Martyn T. Smith, Ph.D.
Steve S. Sommer, M.D., Ph.D.
Graciela Spivak, Ph.D.
Radim J. Sram, M.D., D.Sc.
Joann B. Sweasy, Ph.D.
Carlos A. Torres-Ramos, Ph.D.
Carrie R. Valentine, Ph.D.
Bennett Van Houten, Ph.D.
Martina L. Veigl, Ph.D.
Graham C. Walker, Ph.D.
Paul A. White, Ph.D.
EMS Committee Meetings

The EMS committees are active throughout the year and have at least one organized meeting during the conference. This year the committees are meeting on Sunday and Monday in the afternoon between 1:00 PM-4:00 PM, as noted in the program. Members are encouraged to be involved in a committee.

Special Interest Groups—SIGs

The breakfast meetings of the society SIGs are a time-tested favorite of the Annual Meetings. The format provides free-form discussions and short presentations of the key challenges. The SIGs provide a casual way for young investigators and seasoned researchers to interact. The SIG breakfast meetings are scheduled Sunday through Tuesday, as noted in the program. The Women in EMS SIG is presenting a Lunchtime Workshop on Sunday at Noon.

Mentoring Workshop, Student and New Investigator Poster Session, and Welcome Reception

The Mentoring Workshop on Saturday at 4:45 PM will kickoff the newly created formal mentoring program in EMS. The mentoring program is a joint endeavor of the Education, Student and New Investigator Affairs Committee and the Membership and Professional Development Committee.

The Student and New Investigator Poster Session and Welcome Reception immediately follows the Mentoring Workshop.

All students and new investigators presenting during the meeting should put their posters on display. This session highlights the research of student and new investigator attendees and provides an additional opportunity for them to present and discuss their research, in addition to the full poster sessions. The presentation of the EMS Student Education Award, in recognition for dedication to student activities, will occur during this session.

Topical Reviews

The topical reviews provide a forum for well-recognized experts in their fields to review the state of their research field, highlight the major research advances, and identify the upcoming challenges. The two topical review presentations occur on Wednesday morning.

The first topical review presenter is Tamar Paz-Elizur from the Weizmann Institute of Science in Israel. Dr. Paz-Elizur will present Functional Approaches in Studying Inter-Individual Variability of DNA Repair and Cancer Risk. Susan Less-Miller from the University of Calgary, Alberta, Canada will present the second topical review. Dr. Less-Miller will present Repair of Ionizing Radiation-Induced DNA Double-Strand Breaks: Complex Pathways for Complex Lesions.

Attention Town Hall Meeting

Wednesday, October 22
7:30 AM–9:00 AM

The Town Hall meeting will be a discussion forum led by EMS President A.J. Wyrobek, with members of the Executive Board serving as panelists. It is an important opportunity for EMS members to provide input into the future directions of our Society through the strategic planning document being developed by the Executive Board.
Sponsored Events

SATURDAY, OCTOBER 18, 2008

SATURDAY WORKSHOP—‘OMIC APPLICATIONS AND IMPACTS ON GENOTOXICITY ASSESSMENT
Contributing Sponsors: Agilent Technologies, Metabolon, Inc., and PPD Biomarker Discovery Sciences, LLC

STUDENT AND NEW INVESTIGATOR POSTER SESSION AND WELCOME RECEPTION
Contributing Sponsor: Genetic Toxicology Association

SUNDAY, OCTOBER 19, 2008

SYMPOSIUM 1—TRANSCRIPTION MEETS DNA DAMAGE
Contributing Sponsor: NASA Space Radiation Program, NASA Johnson Space Center

SYMPOSIUM 2—SYSTEMS TOXICOLOGY: AN EMERGING APPROACH FOR INVESTIGATING MECHANISMS OF TOXICITY AND RISK ASSESSMENT
Contributing Sponsors: Pfizer Inc. and U.S. Environmental Protection Agency

SYMPOSIUM 3—MODE-OF-ACTION CANCER RESEARCH AND RISK ASSESSMENT: A CASE STUDY USING PROPYLENE OXIDE
Primary Sponsor: American Chemical Council: Global PO Toxicology Research

LUNCHTIME WORKSHOP—RAPID IN VIVO MUTATION ANALYSIS USING THE ENDOGENOUS PIG-A GENE
Contributing Sponsors: Litron Laboratories, National Center for Toxicological Research, U.S. FDA, and TEIJIN Pharma Limited

LUNCHTIME WORKSHOP—WOMEN IN ENVIRONMENTAL MUTAGEN SOCIETY (WEMS)
Contributing Sponsor: Office of Research in Women Health, National Institutes of Health

SYMPOSIUM 4—CONSEQUENCES OF GENOTOXIC DAMAGE TO MITOCHONDRIAL DNA
Contributing Sponsor: The Ellison Medical Foundation

SYMPOSIUM 5—INSIGHTS INTO GERMLINE MUTAGENESIS
Contributing Sponsor: NASA Space Radiation Program, NASA Johnson Space Center

SYMPOSIUM 6—GLOBAL WARMING AND ENVIRONMENTAL HEALTH
Contributing Sponsor: National Institute of Environmental Health Sciences

MONDAY, OCTOBER 20, 2008

SYMPOSIUM 7—GLOBAL HEALTH IN THE AMERICAS: THE IMPACT OF THE ENVIRONMENT
Contributing Sponsors: March of Dimes, National Cancer Institute, and NASA Space Radiation Program, NASA Johnson Space Center

SYMPOSIUM 8—FORMALDEHYDE AND LEUKEMIA: EPIDEMIOLOGY, POTENTIAL MECHANISMS, AND IMPLICATIONS FOR RISK ASSESSMENT
Primary Sponsor: U.S. Environmental Protection Agency

SYMPOSIUM 9—METHYLPHENIDATE TREATMENT OF ADHD: ARE PEDIATRIC PATIENTS AT RISK OF INDUCED GENETIC DAMAGE?
Contributing Sponsors: National Center for Toxicological Research, U.S. FDA, National Institute of Child Health and Human Development and National Institute of Environmental Health Sciences

SYMPOSIUM 10—DNA DAMAGE IN NEURODEGENERATION, AGING, AND CANCER
Contributing Sponsor: The Ellison Medical Foundation

SYMPOSIUM 11—NEW PERSPECTIVES AND ISSUES EMERGING FROM 30 YEARS OF RESEARCH ON DRINKING WATER DISINFECTION BY-PRODUCTS
Contributing Sponsor: U.S. Environmental Protection Agency
Sponsored Events

PLENARY LECTURE—AGING AND CANCER: ARE TELOMERES AND TELOMERASE THE CONNECTION?
Contributing Sponsor: NASA Space Radiation Program, NASA Johnson Space Center

TUESDAY, OCTOBER 21, 2008

SYMPOSIUM 12—THE U-SHAPED CURVE: WHEN MORE IS NOT BETTER
Contributing Sponsor: Integrated Laboratory Systems, Inc.

RISK ASSESSMENT SPECIAL INTEREST GROUP BREAKFAST
Primary Sponsor: Boehringer Ingelheim Pharmaceuticals, Inc.

SYMPOSIUM 13—LOW DOSE RADIATION-INDUCED GENOME AND EPigenOME INSTABILITY
Primary Sponsor: National Institute of Allergy and Infectious Diseases

TRAVEL AWARDS
Primary Sponsor: National Institute of Environmental Health Sciences Grant No. 1R13ES017216-01

WEDNESDAY, OCTOBER 22, 2008

SYMPOSIUM 15—DEVELOPMENT OF NOVEL, RAPID, AND PORTABLE ENVIRONMENTAL DETECTION METHODS
Primary Sponsor: U.S. Department of Homeland Security

SYMPOSIUM 16—EPigenETIC MECHANISMS, DNA REPAIR, AND CHROMATIN
Primary Sponsor: Office of Science (BER), U.S. Department of Energy, Grant No. DE-FG02-08ER64662

GENERAL MEETING SPONSORS

John Wiley & Sons

Merck Research Laboratories

National Institute of Environmental Health Sciences Grant No. 1R13ES017216-01

sanofi aventis

Schering-Plough Research Institute

Society of Toxicology
General Information

Registration Hours
The registration is located at the Rio Mar Atrium.

- Friday: 3:00 PM–5:00 PM
- Saturday: 8:00 AM–6:00 PM
- Sunday: 7:00 AM–6:00 PM
- Monday: 7:00 AM–6:00 PM
- Tuesday: 8:00 AM–11:30 AM
- Wednesday: 8:00 AM–12:00 NOON

Author Attended Poster and Exhibit Hours

- Sunday: 8:30 PM–10:30 PM
  Odd Numbered Abstracts Attended
- Monday: 8:30 PM–10:30 PM
  Even Numbered Abstracts Attended

Poster Presentations
All posters should be on display beginning at 4:00 PM on Sunday, October 19, 2008. All posters will be on display Sunday through Tuesday. Each poster should be displayed in the area corresponding with the assigned poster number, each poster board surface accommodates two posters—the poster size is 4 feet by 4 feet. Poster presenters are requested to present their posters during their assigned poster session only, this is when conference participants will plan to meet you to discuss your work. All posters should be removed between 1:15 PM and 2:00 PM on Tuesday, October 21, 2008.

Photography Policy
Photography of scientific presentations is prohibited without advance specific consent of the presenter(s)/author(s). Session chairs are asked to strictly enforce this policy and individuals who do not comply will be asked to leave the session. In addition, cameras and recording devices are prohibited in the Exhibit Hall.

EMS Annual Meeting registrants grant the EMS permission to reproduce, copy, and publish photographs taken at the Annual Meeting unless written notification by the registrant, stating otherwise, is submitted to the EMS Headquarters office prior to the Annual Meeting or while registering on-site.

First Aid and Security
The Wyndham Rio Mar has equipped each meeting room with a house phone for use in case of emergency. If you need medical or security assistance pick up the house phone and dial 0, the hotel operator will connect you to the correct department.

About Safety and Security
There is a possibility of demonstrators given the nature of our conference. Emergencies of this nature range from verbal confrontations, protest, or strikes. We recommend the following procedures in the event of demonstrations:

- Wear your name badge in the Wyndham Rio Mar. When leaving the hotel, remove it so as to blend with other people.

- If you see a demonstration or protest beginning, please contact a member of the EMS staff and they will initiate the appropriate response. If you see actions that appear threatening, notify the nearest security officer.

- Do not engage, defend either side, or subdue person(s) in any type of disturbance. Demonstrators are usually trying to attract media attention. Don’t help them.

- EMS Representatives will respond to media inquires. Do not participate in interviews or other media responses.

- In the unlikely event that outsiders disrupt a scientific session or other event, please follow the chairperson’s directions and avoid becoming involved in the situation.

Our first priority is safety. The best way to stay safe is to be aware of your surrounding and avoid situation where you feel uncomfortable.
Tuesday Afternoon Optional Tour—Old San Juan
(2:00 PM–6:30 PM)

EMS attendees have the opportunity to visit one of the oldest cities in the Americas, Old San Juan. This 465-year-old neighborhood was originally conceived as a military stronghold. Its 7-square-block area has evolved into a charming residential and commercial district. Experience this historical city on the Old San Juan Walking Tour. The tour will include the historic fortress El Morro, the Old City (Viejo San Juan), and time for shopping. The group tour is scheduled for Tuesday, October 21, and will depart at 2:00 PM, returning in time for the banquet. The on-site registration rate is $70, space is limited.

EMS attendees with tickets for the Old San Juan tour on Tuesday, October 21, 2008, should board the buses at 1:45 PM. Busses will depart from the Wyndham Rio Mar at 2:00 PM. The busses will be parked at the main lobby entrance.

Internet Access at the Annual Meeting

EMS appreciates how important it is for attendees to stay connected to daily responsibilities in their home locations while attending the meeting. Access to the Internet will be available during registration hours. In addition, the Wyndham Rio Mar offers high-speed wireless Internet access in their guest rooms and public spaces for $9.99 per 24-hour log on time. Please note that the wireless Internet access is not available on the meeting room levels.

Conference Site

The conference will be held at the Wyndham Rio Mar, 6,000 Rio Mar Boulevard, Rio Grande, Puerto Rico. Located 20 miles from the Luis Munoz Marin International Airport, the Wyndham Rio Mar is a 500-acre tropical resort on magnificent Rio Mar Beach, located on the Northeast corner of Puerto Rico. It is adjacent to El Yunque Caribbean National Forest, which covers more than 28,000 acres in the Luquillo Mountains and is home to more than 240 species of trees, 1,000 species of plants, and 60 species of birds.

The Wyndham is a smoke-free hotel that offers a wonderful family environment and activities for all interests. It features one mile of white sandy beach; two championship golf courses, putting green and driving range; 13 tennis courts; Mandra Spa; an extensive health club; nature trails; casinos; and an array of exciting water sports including jet skiing, snorkeling and scuba diving.

Ground Transportation

If you did not rent a car you may want to consider taking advantage of the shuttle to return to the airport. The one-way shuttle fee is $30 per person and will be billed to your hotel room. Arrangements must be made in advance, at least thirty-six hours prior to your departure, by contacting the hotel concierge at (787) 888-6000. Please schedule to leave the Wyndham Rio Mar three hours before your flight time. One-way taxi service from the Wyndham Rio Mar to the airport is $85–$100. All prices are subject to change.

Hotel Parking

The Wyndham Rio Mar offers both self parking and valet parking. Self parking is offered at $15 per day and valet parking is $20 per day. All prices are subject to change.

Meals

A light breakfast is provided for registrants of the Special Interest Group meetings, held Sunday–Tuesday. As part of your registration fee a boxed lunch will be provided on Sunday and a buffet lunch will be held in the Exhibit Hall on Monday. You are on your own for lunch on Saturday, Tuesday and Wednesday. The EMS Annual Banquet is Tuesday evening at 7:30 PM and will include dinner and dancing. You are on your own for dinner all other evenings. On Sunday and Monday the dinner break is scheduled for 6:15 PM–7:30 PM. With this in mind it is recommended that you make your dinner plans in advance. There are several restaurants located on the resort. Reservations are suggested at many of the restaurants. The reservations policy and list of restaurants are located on page 36.

Future Meetings

EMS 40th Annual Meeting
October 24–28, 2009
Marriott St. Louis Union Station
St. Louis, Missouri

EMS 41st Annual Meeting
October 23–27, 2010
Omni Fort Worth Hotel
Fort Worth, Texas
# 39th Annual Meeting of the Environmental Mutagen Society

## Agenda

### Friday, October 17

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
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<tbody>
<tr>
<td>3:00 PM–5:00 PM</td>
<td>Rio Mar Atrium</td>
<td>REGISTRATION</td>
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<tr>
<td>10:00 AM–12:30 PM</td>
<td>Boardroom</td>
<td>EMS EXECUTIVE BOARD MEETING</td>
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<td>1:00 PM–4:30 PM</td>
<td>Parrot</td>
<td>EMS COUNCIL MEETING</td>
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<td>1:30 PM–4:30 PM</td>
<td>Rio Mar 7–8</td>
<td>SATURDAY WORKSHOP</td>
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<tr>
<td>1:30 PM–4:30 PM</td>
<td>Rio Mar 7–8</td>
<td>‘OMICS APPLICATIONS AND IMPACTS ON GENOTOXICITY ASSESSMENT</td>
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<td>Separate Registration Required</td>
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<td>Chairpersons: <strong>Brinda Mahadevan</strong>, Schering-Plough Research Institute and <strong>Matthew Coleman</strong>, Lawrence Livermore National Laboratory</td>
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<td>Organized by the New Technologies Special Interest Group</td>
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<td>Contributing Sponsors: <strong>Agilent Technologies</strong>, <strong>Metabolon, Inc.</strong>, and <strong>PPD Biomarker Discovery Sciences, LLC</strong></td>
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<tr>
<td>3:10 PM</td>
<td>Rio Mar 9–10</td>
<td>RECENT ADVANCES IN PROTEOMICS AND METABOLOMICS</td>
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<tr>
<td>3:10 PM</td>
<td>Rio Mar 9–10</td>
<td>Chris Becker, PPD Biomarker Discovery Sciences, LLC</td>
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<tr>
<td>3:35 PM</td>
<td>Rio Mar 9–10</td>
<td>METABOLOMICS AND ITS APPLICATIONS TO IMPROVE DRUG SAFETY</td>
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<tr>
<td>4:00 PM</td>
<td>Rio Mar 9–10</td>
<td>A METABOLOMICS APPROACH TO STUDY THE EFFECTS OF CIGARETTE SMOKE IN HUMAN LUNG EPITHELIAL CELLS</td>
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<tr>
<td>4:45 PM–6:00 PM</td>
<td>Rio Mar 9–10</td>
<td>CONCLUDING REMARKS/DISCUSSION</td>
</tr>
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### Saturday, October 18

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
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<tr>
<td>8:00 AM–6:00 PM</td>
<td>Rio Mar Atrium</td>
<td>REGISTRATION</td>
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<tr>
<td>4:45 PM–6:00 PM</td>
<td>Rio Mar 9–10</td>
<td>MENTORING WORKSHOP</td>
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<td>Chairpersons: <strong>Catherine B. Klein</strong>, New York University and <strong>Ofelia A. Olivero</strong>, National Cancer Institute, NIH</td>
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<tr>
<td>4:45 PM</td>
<td>Rio Mar 9–10</td>
<td>INTRODUCTION TO EMS MENTORING PROGRAM</td>
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<td>5:00 PM</td>
<td>Rio Mar 9–10</td>
<td>DOUBLE HAPPINESS: MENDEL AND LIFE-LONG MENTORING</td>
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<td>5:30 PM</td>
<td>Rio Mar 9–10</td>
<td>PANEL DISCUSSION</td>
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<tr>
<td>6:00 PM–8:00 PM</td>
<td>Rio Mar 5</td>
<td>STUDENT AND NEW INVESTIGATOR POSTER SESSION AND WELCOME RECEPTION</td>
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## Contributing Sponsors:
- Agilent Technologies
- Metabolon, Inc.
- PPD Biomarker Discovery Sciences, LLC
Sunday, October 19

7:00 AM–6:00 PM  Rio Mar Atrium
REGISTRATION

7:30 AM–9:00 AM  Caribbean 1
BREAKFAST MEETINGS
DNA REPAIR
SPECIAL INTEREST GROUP
Chairpersons: Mats Ljungman, University of Michigan Medical School and Joann B. Sweasy, Yale University School of Medicine
7:30 AM  TO BE ANNOUNCED
8:00 AM  DISCUSSION OF DNA REPAIR PATHWAYS AS THERAPEUTIC TARGETS IN CANCER THERAPY
Joann B. Sweasy, Yale University School of Medicine and Mats Ljungman, The University of Michigan

The DNA Repair Special Interest Group brings together EMS members interested in DNA repair and related areas such as DNA damage, genomic instability, DNA damage responses, mutagenesis and cell death pathways. At the annual EMS meeting we meet for breakfast and informally discuss a topic of interest for the group. We also brainstorm about topics of symposia and keynote lectures for the next year’s EMS meeting and representatives bring these ideas to the program committee meeting the last day of the meeting.

7:30 AM–9:00 AM  Caribbean 2
EPIGENETICS
SPECIAL INTEREST GROUP
Chairpersons: Randy L. Jirtle, Duke University Medical Center and W. David Sedwick, Case Western Reserve University
Organized by Catherine B. Klein, New York University School of Medicine and Olga Kovalchuk, University of Lethbridge
7:30 AM  DISCUSSION SIG ACTIVITIES, FUTURE PLANNING
7:50 AM  BRIEF SCIENTIFIC PRESENTATIONS (TO BE ANNOUNCED) AND DISCUSSION

Epigenetics is a new Special Interest Group (SIG). EMS members who are doing epigenetic research, wish to do so, or are just curious are encouraged to become participants of this SIG.

Human epidemiological and animal experimental data indicate that the risk of developing adult-onset chronic diseases like cardiovascular disease, diabetes, obesity, and cancer is influenced by persistent adaptations to prenatal and early postnatal nutrition. Two epigenomic targets that potentially link environmental conditions during early development to adult disease susceptibility are imprinted genes and those with metastable epialleles. Genomic imprinting is an epigenetic form of gene regulation that results in monoallelic, parent-of-origin dependent gene expression. Genes with metastable epialleles have highly variable functions because of stochastic allelic changes in the epigenome rather than mutations in the genome. The importance of epigenetic deregulation of such genes in determining human risk to environmentally-induced diseases is now being actively investigated.

7:30 AM  Caribbean 3
TRANSGENIC AND IN VIVO MUTAGENESIS SPECIAL INTEREST GROUP
Chairpersons: Mugimane Manjanatha, National Center for Toxicological Research, U.S. FDA and Kathleen A. Hill, The University of Western Ontario
7:30 AM  GENERAL INTRODUCTION
NOMINATIONS AND ELECTIONS FOR CHAIR AND SECRETARY TIVM SIG 2008-2009
CIRCULATE MEMBERSHIP LIST UPDATE
NEW BUSINESS
7:40 AM  TIME COURSE OF CHEMICAL-INDUCED IN VIVO GENOTOXICITY EVALUATED USING A COMBINED PROTOCOL FOR MICRONUCLEUS AND COMET ANALYSES. (P87)
Cheryl A. Hobbs, Integrated Laboratory Systems, Inc.
8:00 AM  NUCLEAR AND MITOCHONDRIAL MUTATIONS IN CANCER. (P56)
Jason H. Bielas, University of Washington
8:20 AM  VALIDATION OF TRANSGENIC RODENT GENE MUTATION ASSAYS USING DNA SEQUENCE DATA. (P41)
George R. Douglas, Environmental Health Science & Research Bureau, Health Canada
8:40 AM  DETECTION OF WEAK MUTAGENS IN TRANSGENIC RODENT MUTATION ASSAYS: CHALLENGING THE INTERNATIONAL WORKSHOPS ON GENOTOXICITY TESTING PROTOCOL RECOMMENDATIONS. (P112)
Tim M. Singer, Health Canada
### SYMPOSIUM 1
**TRANSCRIPTION MEETS DNA DAMAGE**

Chairpersons: **Philip C. Hanawalt**, Stanford University and **Mats Ljungman**, University of Michigan Medical School

**Contributing Sponsor:** NASA Space Radiation Program, NASA Johnson Space Center

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<tr>
<td>9:00 AM</td>
<td>9:00 AM</td>
<td>TRANSCRIPTION ENCUMBRANCES AND THEIR IMPLICATIONS FOR HUMAN DISEASE</td>
<td>Philip C. Hanawalt, Stanford University</td>
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<tr>
<td>9:25 AM</td>
<td>S1</td>
<td>CELLULAR RESPONSES TO TRANSCRIPTION STALLING</td>
<td>Mats Ljungman, University of Michigan Medical School</td>
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<td>9:50 AM</td>
<td>S2</td>
<td>RNA POLYMERASE ENCOUNTERS WITH DNA DAMAGE: ASSEMBLY OF REPAIR FACTORS AND CHROMATIN REMODELLERS FOR TRANSCRIPTION-COUPL ED REPAIR</td>
<td>Leon H.F. Mullenders, Leiden University Medical Center</td>
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<td>10:15 AM</td>
<td>BREAK</td>
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<td>10:40 AM</td>
<td>S3</td>
<td>CELLULAR COMPLEXES OF TCR PROTEINS, RNA POLYMERASE II, AND THE BER GLYCOSYLASE NEIL2</td>
<td>Altaf H. Sarker, Lawrence Berkeley National Laboratory</td>
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<td>10:55 AM</td>
<td>S4</td>
<td>DNA-PK INTERACTS WITH AND PHOSPHORYLATES XPG AND IS REQUIRED FOR RECOVERY OF RNA SYNTHESIS AFTER UV</td>
<td>Kelly S. Trego, Lawrence Berkeley National Laboratory</td>
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<tr>
<td>11:10 AM</td>
<td>S5</td>
<td>XPD STRUCTURAL BIOLOGY AND INSIGHTS INTO THE CANCER, DEVELOPMENT, AND AGING DEFECTS FROM XPD MUTATIONS</td>
<td>John A. Tainer, Lawrence Berkeley National Laboratory, Skaggs Institute for Chemical Biology and The Scripps Research Institute</td>
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<td>11:35 AM</td>
<td>S6</td>
<td>DNA ADDUCTS AS MEDIATORS OF HUMAN DISEASE AND STRUCTURAL PROBES OF TRANSCRIPTION MECHANISM</td>
<td>P.J. Brooks, National Institute on Alcohol Abuse and Alcoholism, NIH</td>
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### SYMPOSIUM 2
**SYSTEMS TOXICOLOGY: AN EMERGING APPROACH FOR INVESTIGATING MECHANISMS OF TOXICITY AND RISK ASSESSMENT**

Chairpersons: **Jiri Aubrecht**, Pfizer Inc. and **Martyn T. Smith**, University of California, Berkeley

**Contributing Sponsors:** Pfizer Inc. and U.S. Environmental Protection Agency

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<td>9:00 AM</td>
<td>S7</td>
<td>SYSTEMS TOXICOLOGY: AN EMERGING APPROACH FOR INVESTIGATING MECHANISMS OF TOXICITY AND RISK ASSESSMENT</td>
<td>Jiri Aubrecht, Pfizer Inc. and Martyn T. Smith, University of California, Berkeley</td>
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<tr>
<td>9:10 AM</td>
<td>S8</td>
<td>TOWARD AGENT-SPECIFIC SIGNATURES: PATHWAY ANALYSIS OF MOLECULAR RESPONSES TO STRESS WITH A SYSTEMS BIOLOGY APPROACH</td>
<td>Al Fornace, Georgetown University</td>
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<tr>
<td>9:55 AM</td>
<td>S9</td>
<td>SYSTEMS APPROACHES FOR EVALUATING GENOTOXIC AND CARCINOGENIC MECHANISMS, CURRENT STATUS AND APPLICATION FOR RISK ASSESSMENT</td>
<td>Jiri Aubrecht, Pfizer Inc.</td>
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<td>10:20 AM</td>
<td>S10</td>
<td>TOXICOGENOMIC ANALYSIS OF CARCINOGENIC MECHANISMS IN VIVO - POTENTIAL UTILITY FOR CANCER RISK ASSESSMENT</td>
<td>Heidrun Ellinger-Ziegelbauer, Bayer Healthcare, Germany</td>
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<td>10:40 AM</td>
<td>S11</td>
<td>BREAK</td>
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<td>11:10 AM</td>
<td>S12</td>
<td>EXPERIMENTAL PHARMACOC GENETIC APPROACHES TO UNDERSTANDING TOXIC RESPONSES IN POPULATIONS</td>
<td>Ivan Rusyn, University of North Carolina, Chapel Hill</td>
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<td>11:35 AM</td>
<td>S13</td>
<td>OPPORTUNITIES FOR PROGRESS IN THE APPLICATIONS OF MECHANISTIC INFORMATION IN RISK ASSESSMENT</td>
<td>Kate Z. Guyton, U.S. Environmental Protection Agency</td>
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SYMPOSIUM 3
MODE-OF-ACTION CANCER RESEARCH AND RISK ASSESSMENT: A CASE STUDY USING PROPYLENE OXIDE

Chairpersons: Lynn H. Pottenger, The Dow Chemical Company and Rita Schoeny, U.S. Environmental Protection Agency

Primary Sponsor: American Chemical Council: Global PO Toxicology Research

9:00 AM S14 MODE-OF-ACTION CANCER RESEARCH & RISK ASSESSMENT: A CASE STUDY USING PROPYLENE OXIDE: REVIEW OF RESEARCH STRATEGY Lynn H. Pottenger, The Dow Chemical Company

9:20 AM S15 A PHYSIOLOGICAL TOXICOKINETIC MODEL FOR INHALED PROPYLENE OXIDE Johannes G. Filscher, GSF Toxicology, Munich

9:40 AM S16 REVIEW OF RESEARCH RESULTS ON PROPYLENE OXIDE MODE-OF-ACTION STUDIES James A. Swenberg, University of North Carolina, Chapel Hill

10:05 AM S17 PROPYLENE OXIDE: GENOTOXICITY PROFILE OF A RODENT NASAL CARCINOCEN Richard J. Albertini, University of Vermont

10:30 AM BREAK

10:50 AM S18 PROPYLENE OXIDE: INTEGRATION OF MOA DATA INTO A CANCER RISK ASSESSMENT Michael L. Gargas, The Sapphire Group, Inc.

11:15 AM S19 MODE-OF-ACTION/HUMAN RELEVANCE ANALYSIS FOR INCORPORATING MECHANISTIC DATA IN HUMAN HEALTH RISK Vicki Dellarco, Office of Pesticide Program, U.S. Environmental Protection Agency

11:35 AM PANEL DISCUSSION

12:00 NOON–4:00 PM OPEN TIME

12:00 NOON–12:30 PM BOX LUNCHES PROVIDED

12:00 NOON–2:00 PM LUNCHTIME WORKSHOP
RAPID IN VIVO MUTATION ANALYSIS USING THE ENDOGENOUS PIG-A GENE

Open to all attendees

Chairpersons: Richard J. Albertini, University of Vermont and James T. MacGregor, Toxicology Consulting Services

Contributing Sponsors: Litron Laboratories, National Center for Toxicological Research, U.S. FDA, and TEIJIN Pharma Limited

12:00 NOON INTRODUCTION TO THE PIG-A GENE AND ITS FUNCTION James T. MacGregor, Toxicology Consulting Services

12:20 PM W1 DEVELOPMENT OF A HIGH THROUGHPUT ASSAY FOR USE IN PRECLINICAL TESTING Stephen D. Dertinger, Litron Laboratories

12:45 PM W2 MOLECULAR ASPECTS AND POTENTIAL ADVANTAGES OF PIG-A GENE HIGH THROUGHPUT ASSAY IN THE RAT Daishiro Miura, Teijin Pharma

1:10 PM W3 PIG-A AS A REPORTER GENE FOR SOMATIC MUTATIONS IN HUMANS Richard J. Albertini, University of Vermont

1:35 PM W4 USING PIG-A MUTATION AS A BIOMARKER IN A HUMAN BIOMONITORING STUDY Radim J. Sram, Institute of Experimental Medicine, Prague

12:00 NOON–2:00 PM LUNCHTIME WORKSHOP
WOMEN IN ENVIRONMENTAL MUTAGEN SOCIETY (WEMS) SPECIAL INTEREST GROUP

Open to all attendees

Chairpersons: Glenda J. Gentile, University of Arizona and Janice M. Pluth, Lawrence Berkeley National Laboratory

Contributing Sponsor: Office of Research in Women Health, National Institutes of Health

12:00 NOON W5 ARE SCIENCE BASED REGULATIONS PUTTING SCIENCE AT RISK? Katherine S. Squibb, University of Maryland School of Medicine

12:30 PM NETWORKING

1:00 PM–3:00 PM 2009 PROGRAM COMMITTEE MEETING (1ST MEETING)

Chairperson: Michael J. Plewa, University of Illinois at Urbana
2:30 PM–3:15 PM  Sea Gull
MEMBERSHIP AND PROFESSIONAL DEVELOPMENT COMMITTEE MEETING
Chairpersons: Ofelia A. Olivero, National Institutes of Health and Kandace J. Williams, University of Toledo College of Medicine

3:00 PM–4:00 PM  Heron
EDUCATION, STUDENT, AND NEW INVESTIGATOR AFFAIRS COMMITTEE
Chairpersons: Olga Kovalchuk, University of Lethbridge and Catherine B. Klein, New York University School of Medicine

3:00 PM–4:00 PM  Egret
FINANCE AND RESOURCE COMMITTEE MEETING
Chairperson: Ronald D. Snyder, Schering-Plough Research Institute

3:15 PM–4:00 PM  Sea Gull
SIG LEADER MEETING
Chairpersons: Ofelia A. Olivero, National Institutes of Health and Kandace J. Williams, University of Toledo College of Medicine

4:00 PM–6:10 PM  Rio Mar 6
SYMPOSIUM 4
CONSEQUENCES OF GENOTOXIC DAMAGE TO MITOCHONDRIAL DNA
Chairperson: Bennet Van Houten, University of Pittsburgh Cancer Institute
Contributing Sponsor: The Ellison Medical Foundation
4:00 PM  S20 MITOCHONDRIAL DNA MUTAGENESIS IN MITOCHONDRIAL DISEASES DUE TO DEFECTS IN DNA POLYMERASE GAMMA William C. Copeland, National Institute of Environmental Health Sciences, NIH
4:25 PM  P55 RANDOM MITOCHONDRIAL MUTATIONS IN HUMAN AGE-DEPENDENT PATHOLOGIES Lawrence A. Loeb, University of Washington [Previously in Poster Session I]
4:50 PM  S21 KEEPING DNA ON TRACK AT ROS CENTRAL: REPAIR OF OXIDIZED ABASIC SITES IN MITOCHONDRIAL DNA Bruce Demple, Harvard University
5:15 PM  S23 MITOCHONDRIAL DNA DAMAGE IS A HALLMARK OF CHEMICALLY-INDUCED AND THE R6/2 TRANSGENIC MODELS OF HUNTINGTON’S DISEASE Sylvette Ayala-Torres, University of Puerto Rico

5:30 PM  S24 THE USE OF C. elegans TO STUDY MITOCHONDRIAL DNA DAMAGE, FISSION/FUSION EVENTS AND AUTOPHAGY Joel N. Meyer, Duke University
5:45 PM  S22 ALTERED GENE EXPRESSION AND DNA DAMAGE IN PERIPHERAL BLOOD CELLS FROM FRIEDREICH’S ATAXIA PATIENTS Bennet Van Houten, University of Pittsburgh Cancer Institute

4:00 PM–6:00 PM  Rio Mar 7–8
SYMPOSIUM 5
INSIGHTS INTO GERMLINE MUTAGENESIS
Chairperson: Steve S. Sommer, City of Hope
Contributing Sponsor: NASA Space Radiation Program, NASA Johnson Space Center
4:00 PM  S26 GERM CELLS MEDIATE UNTARGETED MUTAGENESIS IN THE MATERNAL GENOME OF PROGENY Richard N. Winn, University of Georgia
4:30 PM  S27 GERMLINE INDELGENESIS REFLECTS ERROR-PRONE PROCESSES Victoria Buettner, City of Hope
5:00 PM  S28 WHEN IS A MUTATION HOT SPOT NOT A HOT SPOT: GERMLINE SELECTIVE ADVANTAGE OF UNEXPECTEDLY COMMON HUMAN DISEASE MUTATIONS Norman Arnheim, University of Southern California
5:30 PM  S29 MICRONUTRIENTS AND ANTIOXIDANT INTAKE AFFECT SEMEN QUALITY AND GENETIC INTEGRITY OF SPERM IN HEALTHY NON-SMOKING MEN Francesco Marchetti, Lawrence Berkeley National Laboratory

4:00 PM–6:00 PM  Rio Mar 9–10
SYMPOSIUM 6
GLOBAL WARMING AND ENVIRONMENTAL HEALTH
Chairpersons: Nina T. Holland, University of California, Berkeley and Christopher J. Portier, University of California
Contributing Sponsor: National Institute of Environmental Health Sciences
4:00 PM  S30 RESEARCH GAPS FOR ENVIRONMENTAL HEALTH SCIENCE: FACING GLOBAL WARMING Christopher J. Portier, National Institute of Environmental Health Sciences, NIH
4:30 PM  S31  MITIGATING, ADAPTING AND SUFFERING: HEALTH EFFECTS ON VULNERABLE POPULATIONS  
**Kirk R. Smith**, University of California, Berkeley

5:00 PM  S32  ASSESSING LINKS BETWEEN AIR POLLUTION, CLIMATE CHANGE, AND PUBLIC HEALTH USING ATMOSPHERIC CHEMICAL TRANSPORT MODELS  
**Jason West**, University of North Carolina, Chapel Hill

5:30 PM  S33  BIOMARKERS OF AIR POLLUTION IN THE AGE OF GLOBAL WARMING  
**Nina T. Holland**, University of California, Berkeley

6:15 PM–7:30 PM  
DINNER ON OWN

7:30 PM–8:30 PM  Rio Mar 6  
PLENARY LECTURE (PL1)  
THE UNIQUE VULNERABILITY OF THE DEVELOPING HUMAN BRAIN TO EARLY NEUROTOXIC EXPOSURES  
**Philip J. Landrigan**, Mount Sinai School of Medicine

8:30 PM–10:30 PM  Rio Mar 1–5  
POSTER SESSION 1 AND EXHIBITS  
Presenter designated by underlined author

**DNA Repair and Damage Responses**

P1  DOUBLE STRAND BREAK REPAIR IN HUMAN MITOCHONDRIAL EXTRACTS  
**Hunter SE**, Collins L, Van Houten B. National Institute of Environmental Health Sciences, Research Triangle Park, NC, United States

P3  THE ROLE OF THE DDB1-CUL4BDED2 E3 UBIQUITIN LIGASE IN NUCLEOTIDE EXCISION REPAIR  
**Kapetanaki MG**, Guererro-Santoro J1,2, Hsieh CL1,2, Gorbachinsky I1, Levine AS1,2, Rapic-otrin V1,2. 1Department of Microbiology and Molecular Genetics, School of Medicine, University of Pittsburgh, Pittsburgh, PA, United States, 2Hillman Cancer Center, University of Pittsburgh Cancer Institute, Pittsburgh, PA, United States

P5  AGE-DEPENDENT ACCUMULATION OF MITOCHONDRIAL AND NUCLEAR DNA DAMAGE IN SPERMATOCYCLIC CELLS DERIVED FROM APE1+/– MICE  
**Acevedo-Torres K1**, Walter C2, Ayala-Torres S1, Torres-Ramos CA1. 1University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico, 2University of Texas Health Science Center at San Antonio, San Antonio, TX, United States

**Epigenetics**

P17  MULTIPLE GENERATIONAL EXPOSURE OF DROSOPHILA MELANOQASTER TO ETHANOL INCREASED TOXIC EFFECTS OF CHLOROPHENOXY HERBICIDES IN LATER GENERATIONS  
**van Gijssel HE**, Gienger HM, Bata MA, Dobmeier AD, Blunck BM. Valley City State University, Valley City, ND, United States

P19  OXIDATIVE STRESS, ANTIOXIDANT DEFENSE SYSTEM DURING HEPATOCARCINOGENESIS INDUCED BY DIETARY METHYL DEFICIENCY IN MICE  
Montgomery BA, Bagnyukova TV, Pogribny IP. National Center for Toxicological Research, Jefferson, AR, United States

P21  SUSCEPTIBILITY OF Y CHROMOSOME TO DNA DAMAGE  
**Xun L**, Jia J, Wei F, Robbins W. UCLA, Los Angeles, CA, United States
P23  EPGENETIC REGULATION OF SOMATIC AND TRANSGENERATIONAL RESPONSE TO ENVIRONMENTAL STRESS IN PLANTS
Boyko A, Tirov V, Yao Y, Kovalchuk I. University of Lethbridge, Lethbridge, AB, Canada

P24  Mutagenesis and Carcinogenesis

P25  THE LOWEST DOSE OF IONIZING RADIATION DETECTABLE USING FISH WHOLE CHROMOSOME PAINTING
Tucker JD, Luckinbill LS. Wayne State University, Detroit, MI, United States

P26  PREDICTING THE GENETIC TOXICITY OF KINASE INHIBITORS BASED UPON KINASE INHIBITORY PROFILES
Olaharski AJ1, Gonzaludo N2, Goldstein D1, Bitter H1, Kirchner S2, Uppal H1, Kolaja K1. Roche Palo Alto LLC, Palo Alto, CA, United States, 1Hoffman-La Roche, Basel, Switzerland

P27  DEVELOPMENT OF A NEW ARRAY COMPARATIVE GENOMIC HYBRIDIZATION TOOL FOR HIGH RESOLUTION ANALYSIS OF MOUSE CHROMOSOME 11
Fuscoe JC1, Han T1, Wang J1, Sawyer J1, Mei N4, Homma M6, Chen T1, Moore MM2, 1Division of Systems Toxicology, National Center for Toxicological Research, FDA, Jefferson, AR, United States, 2Center for Food Safety and Applied Nutrition, FDA, College Park, MD, United States, 3University of Arkansas for Medical Sciences, Little Rock, AR, United States, 4Division of Genetic and Reproductive Toxicology, National Center for Toxicological Research, FDA, Jefferson, AR, United States, 5National Institute of Health Sciences, Tokyo, Japan

P28  RIDDLELIIINE INDUCED RAT LIVER MUTAGENICITY AND GENE EXPRESSION PROFILE
Mei N1, Guo L2, Fuscoe JC2, Chen T1. 1Division of Genetic and Reproductive Toxicology, National Center for Toxicological Research, Jefferson, AR, United States, 2Division of Systems Toxicology, National Center for Toxicological Research, Jefferson, AR, United States

P29  MECHANISM OF INHIBITION OF ARSENITE COCARCINOGENESIS BY SUPPLEMENTAL SELENIUM (SE)
Russman TG, Uddin AN, Burns FJ, Vega K. New York University School of Medicine, Tuxedo, NY, United States

P30  THE POTENTIAL CARCINOGENIC EFFECTS OF SOME TRYPHTOPHAN METABOLITES
Chung KT, Gadupudi GS. The University of Memphis, Memphis, TN, United States

P31  HUMAN TOXICOGENOMIC ANALYSIS OF BROMOACETIC ACID: A REGULATED DRINKING WATER DISINFECTION BY-PRODUCT
Wagner ED1, Muller MG1, Hudson ME1, Atteno-Ramos MS1, Plewa MJ1. 1University of Illinois, Urbana, IL, United States, 2Nalco Company, Naperville, IL, United States

P32  GENE SELECTION AND GENE IDENTIFICATION IN MICROARRAY DATA ANALYSIS
Chen J1, Zou W, Chang C-W, Morris SM. National Center for Tox Res, Jefferson, AR, United States

P33  VALIDATION OF TRANSGENIC RODENT GENE MUTATION ASSAYS USING DNA SEQUENCE DATA
Douglas GB1, Soper LM1, Singer TM2. 1Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada, 2New Substances Assessment and Control Bureau, Health Canada, Ottawa, ON, Canada

P34  MUTANT T-CELLS IN MELANOMA PATIENTS: PROBES FOR IMMUNOLOGICAL RESPONSES
Albertini MR1, Macklin MD2, Zuleger CL1, Newton MA1, Albertini RJ1. 1William S. Middleton Veterans Hospital, Madison, WI, United States, 2University of Wisconsin Paul P. Carbone Comprehensive Cancer Center, Madison, WI, United States, 3University of Vermont, Burlington, VT, United States

P35  BYSTANDER RESPONSES INDUCED BY MITOMYCIN C, PHLEOMYCIN AND IONIZING RADIATION IN NORMAL HUMAN LYMPHOBLASTOID CELLS
Asur R, Thomas RA, Tucker JD. Wayne State University, Detroit, MI, United States

P36  GPI-DEFICIENT RAT LYMPHOCYTES HAVE MUTATIONS IN THE PIG-A GENE
Miura D1, Mittalseta RA2, Shaddick JG3, Dobrowolsky VN4, Heflich RH4. 1Teijin pharma Limited, Tokyo, Japan, 2USFDA/National Center for Toxicological Research, Jefferson, AR, United States

P37  THE EFFECT OF REDUCED LEVELS OF HUMAN DNA POLYMERASE β ON MICROARRAY MUTAGENESIS IN HUMAN CELLS
Jacob KD1, Sobol RW2, Eckert KA2. 1The Pennsylvania State University College of Medicine, Hershey, PA, United States, 2The University of Pittsburgh, Pittsburgh, PA, United States

P38  EVALUATION OF JJ MUTATIONS IN BIG BLUE MICE FED METHYLPHENIDATE HYDROCHLORIDE FOR UP TO 24 WEEKS
Shelton SD1, Manjanatha MG1, Mattison DR2, Morris SM2. 1National Center for Toxicological Research/FDA/DGRT, Jefferson, AR, United States, 2National Institute of Child Health and Human Development, Bethesda, MD, United States

P39  CYTOTOXICITY AND MITOCHONDRIAL MEMBRANE DAMAGE EFFECTS OF DI-ETHYLHEXYL AND MONO-ETHYLHEXYL PHTHALATES ON HUMAN TK-6 LYMPHOCYTE CELLS
Rosaldo C, Velez C, Zayas B. Metropolitan University, San Juan, Puerto Rico

P40  [PRESENTED IN SYMPOSIUM 4]

Environmental Genotoxins and Risk Assessment

P41  induction of DNA repair Ogt-alquil ENZYMES BY ROHEO DISCOLOR, ANTIMUTAGENIC ETHANOLIC EXTRACT
Arriaga-Alba M1, Gonzales-Avila M2, Ruiz-Perez NJ1, Sanchez-Navarrete J1. 1Hospital Juarez de Mexico, Mexico DF, Mexico, 2Universidad Politecnica de Pachuca, Pachuca-Cd Sahagún, Zempoala Hidalgo, Mexico
P59 GENOTOXIC EXPOSURE ASSESSMENT IN DEPLETED URANIUM (DU) EXPOSED GULF WAR I VETERANS: SIXTEEN YEARS OF FOLLOW UP
McDiarmid MA1,2, Guerc P1,2, Oliver M1,2, Engelhardt SM1, Squibb KS1,2, Dorsey C1,2, Vacek PM1, Andell SK1, Albertini RJ1. 1University of Maryland, Baltimore, MD, United States, 2Department of Veterans Affairs Medical Center, Baltimore, MD, United States, 3University of Vermont, Burlington, VT, United States

P61 POLYMORPHISMS (SNPS) IN DNA REPAIR GENES AND BLADDER CANCER RISK
Michiels S1, Laplanche A1, Boulet T1, Dessen P1, Guillonneau B1, Méjean A1, Desgrandchamps F1, Lathrop M1, Sarasin A1, Benhamou S1,2. 1Institut Gustave Roussy, Villejuif, France, 2INSERM U794, Paris, France, 3CNRs FRE299, Villejuif, France, 4Centre National de Genotypage, Evry, France, 5Institut Mutualiste Montsouris, Paris, France, 6Hopital Becker, Paris, France, 7Hopital Saint-Louis, Paris, France

P63 FLOW CYTOMETRIC DETERMINATION OF THE MICRONUCLEUS FREQUENCY IN JUVENILE RHESUS MONKEYS CHRONICALLY EXPOSED TO METHYLPHENIDATE HYDROCHLORIDE
Bishop M1, Hotchkiss CE3, Lin C-J2, Chen JJ2, Mattison DR4, Morris SM1, DGRF/NCTR/FDA, Jefferson, AR, United States, DP2MN/NCTR/FDA, Jefferson, AR, United States, WANGRC/University of Washington, Seattle, WA, United States, OPP/NICHD/Bethesda, MD, United States

P65 FUNCTIONAL FOOD POTENTIAL OF FERMENTED RED WINE POMACE
Yoshikawa K. Kinki University, Nara City, Japan

P67 FREQUENCY OF CHROMOSOMAL ABERRATIONS IN PRAGUE'S MOTHERS AND THEIR NEWBORNS
Sram RJ1, Rossnerova A1, Balascak P1, Institute of Experimental Medicine AS CR, v.v.i., Prague, Czech Republic, 2Faculty of Medicine, Charles University, Prague, Czech Republic

P69 DEVELOPMENT OF AN AUTOMATED IN VITRO MICRONUCLEUS ANALYSIS METHOD IN CHL/JU CELLS
Muto S, Sugiyama K, Kurabe M, Aruga C, Yamamura E, Uno Y. Mitsubishi Tanabe Pharma Corporation, Kisarazu, Chiba, Japan

P71 COUPLING CYTOTOXIC BIOMARKERS WITH IN VITRO COMET ASSAY

P73 EVALUATION OF MICRONUCLEUS FREQUENCIES AND DNA DAMAGE IN MALE RATS ADMINISTERED METHYLPHENIDATE HYDROCHLORIDE (RITALIN) FOR 28 DAYS
Witt KL1, Recio L1, Shepard K1, Green A1, Baldetti C1, Winters J1, Davis J1, Caspary W2, Hobbs CA1. 1National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC, United States, 2Genetic Toxicology Division, ILS, Inc., Research Triangle Park, NC, United States, 3Integrative Toxicology Division, ILS, Inc., Research Triangle Park, NC, United States

P75 CYTOTOXICITY AND MUTAGENICITY OF STEREOISOMERS OF 3-EPOXYBUTANE-1, 2-DIOL AT LOW CONCENTRATIONS IN TK6 CELLS
Meng Q1, Hackfeld L2, Hodge R3. 1Battelle Toxicology Northwest, Richland, WA, United States, 2University of Texas Medical Branch at Galveston, Galveston, TX, United States

P77 CYTOTOXIC AND GENOTOXIC POTENTIAL OF SURFACE AND WASTE WATERS USING THE ALLIUM AND COMET TESTS
Kadić S1, Stipanicev D2, Cvjetko P1, Širac S1, Marijanovic Rajcic M1, Fevalex-Kindiška B1, Pavlica M1. 1University of Zagreb, Zagreb, Croatia, 2Hrvatske vode-legal Entity for Water Management, Zagreb, Croatia

P79 IDENTIFICATION OF PROMUTAGENS USING ‘S9’, HEPATOCYTES AND HEPAR G CELLS, WITH THE GADD45AGFP GENOTOXICITY ASSAY
Walmsley RM1,2, Tate M1, Jagger C1, Rabinowitz A2, Hughes C1, Cahill PA1, Knight AW2, Billinton N1. 1University of Manchester, Manchester, United Kingdom, 2Gentronix Ltd, Manchester, United Kingdom

P81 CYCLOPHOSPHAMIDE AND ETOPOSIDE CANINE STUDIES DEMONSTRATE THE CROSS-SPECIES POTENTIAL OF THE PERIPHERAL BLOOD MICRONUCLEATED RETICULOCYTE ENDPOINT
Torous D1, McKeon M1, Schmuck G1, Xu Y1, Burgess S1, Aylsworth S1, Dentinger S1, Kirkland D1. 1Litron Laboratories, Rochester, NY, United States, 2Covance, Virginia, VA, United States, 3Bayer Healthcare, Wuppertal, Germany, 4Covance, Harrogate, United Kingdom

P83 THE MUTAGENIC ACTIVITY OF HIGH-ENERGY EXPLOSIVES, CONTAMINANTS OF CONCERN AT MILITARY TRAINING SITES
McAllister JE1,2, Gingerich JD1, White PA1. 1Health Canada, Ottawa, ON, Canada, 2University of Ottawa, Ottawa, ON, Canada

P85 THE EFFECT OF HEAT SHOCK ON DNA INTEGRITY IN LEAVES OF Nicotiana tabacum L
Cvjetko P, Balen B, Peharec P, Pavlica M. University of Zagreb, Zagreb, Croatia

P87 TIME COURSE OF CHEMICAL-INDUCED IN VIVO GENOTOXICITY EVALUATED USING A COMBINED PROTOCOL FOR MICRONUCLEUS AND COMET ANALYSES
Hobbs CA1, Recio L1, Shepard K1, Winters J1, Green A1, Baldetti C1, Streicker M1, Davis J1, Caspary W2, Witt KL3. 1Integrated Laboratory Systems, Research Triangle Park, NC, United States, 2Toxicology Branch, NIEHS, Research Triangle Park, United States, 3National Toxicology Program (NTP), Research Triangle Park, United States

P89 STUDY OF GENOTOXICITY AND OXIDATIVE STRESS BIOMARKERS IN RATS EXPOSED TO TOLEUENE, CHLOROFORM, METHYLENE CHLORIDE AND A MIXTURE OF THEM
Belmont JA1, Serrano L1, Fanjul ML1, Prieto J1, Montero RD1. 1Instituto de Investigaciones Biomedicas, U.N.A.M., Mexico, DF, Mexico, 2Facultad de Ciencias, U.N.A.M., Mexico, DF, Mexico
P91  CARCINOGEN EXPOSURE, MUTANT DNA BIOMARKERS, AND HUMAN CANCER RISK
Sampliner DS, Fleasum RK, Food and Drug Administration, Silver Spring, MD, United States

P93  ABSTRACT WITHDRAWN

P95  AUTOMATED ANALYSIS OF MICRONUCLEI IN BINUCLEATE HUMAN LYMPHOCYTES

P97  REVISION OF ICH S2 GUIDANCE: J&JPRD EXPERIENCE WITH INTEGRATED APPROACHES FOR IN VIVO GENOTOXICITY ASSESSMENT
van der Leede BM, De Boeck M, Van Goethem F, Van Gompel J. Johnson & Johnson Pharmaceutical Research & Development, a Division of Janssen Pharmaceutica N.V., Beerse, Belgium

P99  SYRIAN HAMSTER EMBRYO (SHE) CELL TRANSFORMATION ASSAY (CTA) WITH CONDITIONED MEDIUM WITHOUT ANY X-RAY IRRADIATED FEEDER CELLS
Pant K1, Bruce SW1, Shy JE1, San RC1, Scott A1, Carmichael P2. 1BioReliance Corporation, Rockville, MD, United States, 2SEAC Unilever, Colworth Sharnbrook Bedford, United Kingdom

P101  “FALSE” POSITIVE REDUCTION IN IN VITRO GENOTOXICITY ASSAYS, ESTIMATION OF TOXICITY AND IMPLICATIONS FOR SELECTION OF MAXIMUM DOSE
Fowler P, Jeffrey L, Young J, Kirkland D. Covance Laboratories LTD, Harrogate, United Kingdom

P103  BIOMARKERS IN THE IN VIVO HUMAN LYMPHOCYTE MICRONUCLEUS TEST IN RELATION TO METABOLIC POLYMORPHISMS OF ENZYMES CYP1A1, CYP2E1, GSTT1, GSTM1 AND NQO1
Suarez K1, Davila VM1, Serrano L, Montero RD. Instituto de Investigaciones Biomedicas, U.N.A.M., Mexico, DF, Mexico

P105  DEFINING CRITERIA FOR THE EVALUATION OF THE AMES II™ MUTAGENICITY ASSAY
Bruce SW1, Shy JE, Cecil MW, Springer SD, Kluger ML. BioReliance Corporation, Rockville, MD, United States

P107  GENOTOXICITY OF ACRYLAMIDE AND GLYCIDAMIDE IN BIG BLUE RATS
McDaniel LP1, Dobrovoljsky VN1, Shaddock JG1, Mei N1, McGarry LJ1, Muir D1, Doerge DR1, Heflich RH1. 1U.S. FDA/ NCTR, Jefferson, AR, United States, 2Teijin Pharma, Tokyo, Japan

P109  INTERPRETING DATA FROM IN VITRO GENOTOXICITY TESTS USING THE ACCELERATED COMET ASSAY
Dewhurst NE1, Vasquez MZ. Helix3, Inc., Morrisville, NC, United States

P111  COMPARISON OF THE CYTOTOXICITY AND MITOCHONDRIAL MEMBRANE PERMEABILITY OF Benzo[a]quinolinium (BQS) ON TUMOR VS NORMAL CELL LINES
Molina D1, Velez C1, Carro S1, Hernandez W1, Arroyo LV1, Cox O2, Zayas B1. 1Metropolitan University, San Juan, Puerto Rico, 2University of Puerto Rico, San Juan, Puerto Rico, 3University of North Carolina, Chapel Hill, NC, United States

P113  MONITORING OF ENVIRONMENTAL POLYCYCLIC AROMATIC HYDROCARBONS (PAH) IN SOIL AND FISH FROM THE CUCHARILLAS MARSHLAND, CATANO, PUERTO RICO
Nieves P, Lopez WL, Zayas B. Metropolitan University, San Juan, PR, United States

P115  COMBINED USE OF MULTIPLE BIOMARKERS TO EVALUATE THE GENOTOXIC ACTIVITY OF THE HERBICIDE GLYPHOSATE
Monday, October 20

7:00 AM–6:00 PM | Rio Mar Atrium
REGISTRATION

7:30 AM–9:00 AM | BREAKFAST MEETINGS
STUDENT AND NEW INVESTIGATOR | Parrot BREAKFAST
Chairpersons: Olga Kovachuk, University of Lethbridge and Catherine B. Klein, New York University School of Medicine

Students and New Investigators are invited to attend a free breakfast workshop on Monday morning. This year’s workshop will provide a forum for students and new investigators to provide feedback on their ideas for participation in EMS. There will also be a discussion about the EMS mentoring program, a joint endeavor of the Education, Student and New Investigator Affairs Committee and the Membership and Professional Development Committee. Don’t miss this chance to share your views and ideas.

GERM CELL, STEM CELL, AND HUMAN GENETICS SPECIAL INTEREST GROUP (GeSteHuG SIG)
Chairpersons: Carole Yauk, Health Canada and Steve S. Sommer, City of Hope

7:30 AM | HIGH LEVELS OF TRANSCRIPTION STIMULATE BASE SUBSTITUTION MUTATIONS IN YEAST
Malcolm J. Lippert, Saint Michael’s College

7:45 AM | HUMAN RECOMBINATION HOTSPOTS
Norman Arneheim, University of Southern California

8:00 AM | DMN DISTURBS SEX DIFFERENTIATION AND INDUCES TRANSGENERATIONAL DAMAGE FROM AFFECTED MALES
Patricia Ramos-Morales, Universidad Nacional Autonoma de Mexico

8:15 AM | GERMLINE MUTATION IN MALE AND FEMALE MICE EXPOSED TO DIESEL EXHAUST PARTICLES IN UTERO
Lynn Berndt-Weis and Carole L. Yauk, Health Canada

8:30 AM | APPLICATIONS OF MASSIVELY PARALLEL SEQUENCING: TO HUMAN GENETICS DIFFERENT TECHNOLOGIES, DIFFERENT SWEET SPOTS
Steve S. Sommer, City of Hope

The Gem Cell and Human Genetic Disease Special Interest Group is for scientists interested in topics about germ-cell mutagenesis, and the challenges of finding human germ-cell and stem-cell mutagens and the consequences of these mutations to human health.

Interests include: the study of germ cell biology as it relates to spontaneous and induced mutagenesis, characterization of germline mutagenesis in the etiology of human diseases, determining how many of deleterious mutations arise through actions of exogenous chemical, physical or biological agents, interpreting the consequences of deleterious mutations, devising methods through use of the new technology for application to detecting presumptive human mutagens and serving as a focal point for discussions of germ-cell and stem-cell mutagenesis research.

NEW TECHNOLOGIES
Caribbean 3
SPECIAL INTEREST GROUP
Chairpersons: Brinda Mahadevan, Schering-Plough Research Institute and Patricia A. Escobar, Boehringer Ingelheim Pharmaceuticals

New Tools to Detect Mutagenicity/Immunotoxicity

7:30 AM | BREAKFAST & DISCUSSION ON THE SIG ACTIVITIES: SURVEY, FUTURE ACTIVITIES OF THE SIG, 3–5 ELEMENTS OF THE SIG AS CRITICAL COMPONENTS OF THE NEW EMS MISSION STATEMENT, AND WEB SITE

8:00 AM | UTILIZING KINASE INHIBITORY PROFILES TO PREDICT IN VITRO MICRONUCLEUS ASSAY RESULTS
Andrew J. Olaharski, Discovery and Investigative Safety, Roche

8:25 AM | DEVELOPING BIOMARKERS OF IMMUNOTOXICITY
Paurene Duramad, Genentech

8:50 AM | CONCLUDING REMARKS/COMMENTS

The New Technologies SIG has as its objective to provide a forum for the introduction and discussion of emerging technologies as they apply to the broad fields of interest to the Society and its members. By way of example, one discussion area of this SIG might be in what ways the ability to view the entire in vitro or in vivo transcriptome by microarray analysis following genotoxic insult helps us either in screening for genotoxicity or understanding the mechanisms of genotoxicity. The SIG will host speakers at annual meetings, who will present either new technologies or will lead discussions on the limitations or extensions of existing technologies.

9:00 AM–12:00 NOON | Rio Mar 6
SYMPOSIUM 7
GLOBAL HEALTH IN THE AMERICAS: THE IMPACT OF THE ENVIRONMENT (A SYMPOSIUM SHOWCASING LATIN AMERICAN SCIENTISTS)
Chairpersons: Graciela Spivak, Stanford University and Ofelia A. Olivero, National Cancer Institute, NIH
Discussant: Helena Groot, Universidad de Los Andes, Bogota, Colombia

Contributing Sponsors: March of Dimes, National Cancer Institute and NASA Space Radiation Program, NASA Johnson Space Center

9:00 AM | INTRODUCTION
Graciela Spivak (Argentina), Stanford University
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<th>Time</th>
<th>Session</th>
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<tr>
<td>9:05 AM</td>
<td>Genetic Diversity of Latin American Populations</td>
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<td>Andrés Ruiz-Linares (Colombia), University College London</td>
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<td>9:40 AM</td>
<td>Arsenic as a Diabetes Inductor</td>
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<td>Patricia Ostrosky Wegman, Universidad Nacional Autónoma de México, Mexico</td>
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<td>10:00 AM</td>
<td>Nuclear Neighborhoods and Chromosome Translocations</td>
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<td>Gustavo A. Folle, Instituto de Investigaciones Biológicas Clemente Estable, Uruguay</td>
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<td>10:20 AM</td>
<td>Break</td>
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<tr>
<td>10:40 AM</td>
<td>Centrosome Amplification: A New Endpoint</td>
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<td>Ofelia A. Olivero (Argentina), National Cancer Institute, NIH</td>
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<tr>
<td>11:00 AM</td>
<td>DNA Repair in Caulobacter Crescentus</td>
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<td>Carlos F. Menck, Universidade de São Paulo, Brazil</td>
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<td>11:20 AM</td>
<td>A Pesticide or Its Commercial Formula: Which of the Two Is More Deleterious?</td>
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<td>Marcelo L. Larramendy, Universidad Nacional de la Plata, Argentina</td>
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<td>11:40 AM</td>
<td>New Insights into the Role of DNA Repair in Breast Cancer</td>
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<td>Jaime L. Matta, Ponce School of Medicine, Puerto Rico</td>
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<td>10:05 AM</td>
<td>DNA Damage Response to Formaldehyde</td>
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<td>Jun Nakamura, University of North Carolina</td>
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<td>10:30 AM</td>
<td>Break</td>
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<tr>
<td>10:45 AM</td>
<td>Analysis of Formaldehyde-DNA Adducts in Rats and Humans</td>
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<td>Stephen S. Hecht, University of Minnesota</td>
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<td>11:10 AM</td>
<td>To Be Announced</td>
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<tr>
<td>11:35 AM</td>
<td>Uncertainties in the Health Risk Evaluation of Formaldehyde</td>
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<td>John Vandenberg, U.S. Environmental Protection Agency</td>
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### Symposium 8: Formaldehyde and Leukemia: Epidemiology, Potential Mechanisms, and Implications for Risk Assessment

**Chairpersons:** Robert Sonawane, U.S. Environmental Protection Agency and Luoping Zhang, University of California, Berkeley

**Primary Sponsor:** U.S. Environmental Protection Agency

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<th>Time</th>
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<td>9:00 AM</td>
<td>Introduction and Overview of the Best Pharmaceuticals for Children Act (BPCA)</td>
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<td>Donald R. Mattison, Institute of Child Health and Human Development, NIH</td>
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<tr>
<td>9:10 AM</td>
<td>Cerhr Evaluations of Methylphenidate and Amphetamines</td>
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<td></td>
<td>Michael D. Shelby, National Institute of Environmental Health Sciences, NIH</td>
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### Symposium 9: Methylphenidate Treatment of ADHD: Are Pediatric Patients at Risk of Induced Genetic Damage?

**Organizers:** Kristine L. Witt, National Institute of Environmental Health Sciences, NIH and Suzanne M. Morris, National Center for Toxicological Research, U.S. FDA

**Chairpersons:** Donald R. Mattison, National Institute of Child Health and Human Development, NIH and Michael D. Shelby, National Institute of Environmental Health Sciences, NIH

**Contributing Sponsors:** National Center for Toxicological Research, U.S. FDA, National Institute of Child Health and Human Development, and National Institute of Environmental Health Sciences
9:55 AM  S50  ACTORS TO CONSIDER WHEN EVALUATING THE CYTOGENETIC EFFECTS OF METHYLPHENIDATE TREATMENT IN PEDIATRIC PATIENTS  
James D. Tucker, Wayne State University

10:15 AM  BREAK

10:30 AM  S51  THE GENETIC TOXICOLOGY AND PHARMACOKINETICS OF MPH IN NON-HUMAN PRIMATES  
Suzanne M. Morris, National Center for Toxicological Research, U.S. FDA

10:50 AM  S52  GENOTOXICITY OF METHYLPHENIDATE HYDROCHLORIDE IN BIG BLUE MICE  
Mugimane Manjanatha, National Center for Toxicological Research, U.S. FDA

11:10 AM  S53  RECENT EXPERIENCES IN PEDIATRIC DRUG DEVELOPMENT: SAFETY ISSUES WITH METHYLPHENIDATE AND OTHER DRUGS  
William J. Rodriguez, U.S. Food and Drug Administration

11:30 AM  S54  PHARMACOLOGICAL EFFECTS OF METHYLPHENIDATE IN THE DEVELOPING PRIMATE  
William Slikker, Jr., National Center for Toxicological Research, U.S. FDA

11:50 AM  SUMMARY  
Donald R. Mattison, National Institute of Child Health and Human Development, NIH and Michael D. Shelby, National Institute of Environmental Health Sciences, NIH

12:00 NOON–1:30 PM  Rio Mar 1–5  
BUFFET LUNCH WITH EXHIBITORS

12:00 NOON–4:00 PM  OPEN TIME

1:30 PM–2:30 PM  Boardroom  
AWARDS COMMITTEE  
Chairperson: P.J. Brooks, National Institute on Alcohol Abuse and Alcoholism, NIH

1:30 PM–2:30 PM  Parrot  
HOLLAENDER COMMITTEE  
Chairperson: Mats Ljunghman, The University of Michigan Medical School

3:00 PM–4:00 PM  Parrot  
PUBLIC RELATIONS AND COMMUNICATIONS COMMITTEE  
Chairpersons: Mugimane Manjanatha, National Center for Toxicological Research, U.S. FDA and Pamela Lee, SRI International

3:00 PM–4:00 PM  Heron  
PUBLICATIONS POLICY COMMITTEE  
Chairperson: Malcolm J. Lippert, Saint Michael’s College

4:00 PM–6:00 PM  Rio Mar 9–10  
PLATFORM SESSION 1  
MUTAGENIC AND CARCINOGENIC MECHANISMS  
Chairperson: Jason Bielas, The Fred Hutchinson Cancer Research Center and David Schild, Lawrence Berkeley National Laboratory  
Platform presenter designated by underlined author

4:00 PM  1  
MUTAGENESIS BY ERROR-PRONE DNA POLYMERASE I: OPTIMIZATION AND APPLICATIONS  
Alexander D, Allen J, Marquette J, Troll C, Camps M. UC Santa Cruz, Santa Cruz, CA, United States

4:15 PM  2  
EFFECT OF P53 CODON-72 POLYMORPHISMS ON RADIATION RESPONSES IN VITRO (APOPTOSIS, CELL CYCLE PROGRESSION, CHROMOSOME DAMAGE), AND IN VIVO (CANCER RISK, GRAFT-VERSUS-HOS T DISEASE)  
Schwartz JL1, Slovik J1, Whiteside T1, Plotnik D1, Leskering WM2, Deeg HJ2, Friedman DL2,1. 1University of Washington, Seattle, WA, United States, 2Fred Hutchinson Cancer Research Center, Seattle, WA, United States

4:30 PM  3  
NON-B DNA STRUCTURE-INDUCED GENETIC INSTABILITY IN MAMMALIAN CELLS  
Wang G, Vasquez K. The University of Texas MD Anderson Cancer Center, Smithville, TX, United States

4:45 PM  LB1  
MRE11 NUCLEASE ACTIVITY HAS ESSENTIAL ROLES IN DNA REPAIR AND GENOMIC STABILITY DISTINCT FROM ATM ACTIVATION  
Buis J, Wu Y, Ferguson DO. Department of Pathology, The University of Michigan Medical School, Ann Arbor, MI, United States

5:00 PM  5  
THE D160N GASTRIC CANCER-ASSOCIATED VARIANT OF DNA POLYMERASE BETA INDUCES CELLULAR TRANSFORMATION AND GENOMIC INSTABILITY  
Sweasy JB, Donigan K. Yale University School of Medicine, New Haven, CT, United States
5:15 PM  6  REPlication of cisPlatin-INDUCED DNA LESIONS: A MUTAGenic EVENT
Leising J, Berdis A. Case Western Reserve University, Cleveland, OH, United States

5:30 PM  7  Enhancing the EFFECTIVENESS of CHEMOTHERAPEUTIC AGENTS BY INHIBITING PRO-MUTAGenic DNA SYNTHESIS
Berdis A, Ramos-Serrano A. Case Western Reserve University, Cleveland, OH, United States

5:45 PM  8  Cell Death and Cell Cycle PATHWAYS AS POTENTIAL TARGETS FOR TUMOR SUPPRESSION BY POL IOTA: A SYSTEMS BIOLOGY APPROACH
Stallons LJ, Kalbfleisch TS, McGregor WG. University of Louisville, Louisville, KY, United States

4:00 PM–6:15 PM  Rio Mar 6
SYMPOSIUM 10
DNA DAMAGE IN NEURODEGENERATION, AGING, AND CANCER

Chairpersons: Laura J. Niedernhofer, University of Pittsburgh Cancer Center Institute and Patricia L. Opresko, University of Pittsburgh

Contributing Sponsor: The Ellison Medical Foundation

4:00 PM  S55  Role of Mre11 in Dysfunctional Telomere-Initiated DNA Damage Response and Repair
Laura J. Niedernhofer, University of Pittsburgh Cancer Center Institute

4:10 PM  S56  Aging and Cancer in Mouse Models of Telomere Dysfunction
Sandy Chang, MD Anderson Cancer Center

4:35 PM  S57  The Werner Syndrome Protein in Telomere Preservation and Repair
Patricia L. Opresko, University of Pittsburgh

5:00 PM  S58  DNA Double-Strand Break Repair in Drosophila: Alternative Pathways and Aging
Mitch McVey, Tufts University

5:25 PM  S59  Base Excision Repair in Cancer Susceptibility and Neurodegeneration
David M. Wilson III, National Institute on Aging, NIH

5:50 PM  S60  A Toxic Oxidation Cycle: Aging in Huntington’s Disease
Cynthia McMurray, Mayo Clinic

4:00 PM–6:15 PM  Rio Mar 7–8
SYMPOSIUM 11
NEW PERSPECTIVES AND ISSUES EMERGING FROM 30 YEARS OF RESEARCH ON DRINKING WATER DISINFECTION BY-PRODUCTS

Chairpersons: David M. DeMarini, U.S. Environmental Protection Agency and Michael J. Plewa, University of Illinois

Contributing Sponsor: U.S. Environmental Protection Agency

4:00 PM  S61  Epidemiologic Studies of Cancer and Disinfection Byproducts (DBP)
Kenneth P. Cantor, National Cancer Institute, NIH

4:25 PM  S62  Formation and Occurrence of Disinfection By-products
Susan D. Richardson, U.S. Environmental Protection Agency

4:50 PM  S63  Genotoxicity of Disinfection By-products in Drinking Water
Michael J. Plewa, University of Illinois

5:15 PM  S64  Carcinogenicity of Disinfection By-products and Research Needs
David M. DeMarini, U.S. Environmental Protection Agency

5:40 PM  S65  Mode-of-action and Risk Assessment of Emerging Disinfection By-products
Rita Schoeny, U.S. Environmental Protection Agency

6:05 PM  DISCUSSION

6:15 PM–7:30 PM  DINNER ON OWN

7:30 PM–8:30 PM  Rio Mar 6
PLENARY LECTURE (PL2)
AGING AND CANCER: ARE TELOMERES AND TELOMERASE THE CONNECTION?

Jerry W. Shay, University Texas Southwestern Medical Center

Contributing Sponsor: NASA Space Radiation Program, NASA Johnson Space Center
P20 ANALYZING GENETIC INTERACTIONS TO ELUCIDATE DNA DAMAGE RESPONSIVE NETWORKS AND TOXICITY MECHANISMS OF ENVIRONMENTAL AGENTS IN YEAST
Quirós L, Svensson P, Wang E, Fry R, Samson LD. Biological Engineering Department and Center for Environmental Health Sciences, MIT, Cambridge, MA, United States

Epigenetics

P16 EFFECTS OF IRRADIATION ON DNA METHYLATION AND GENOMIC INSTABILITY
Aspar U, Malkiel LN, Baulch JE. University of Maryland, School of Medicine, Baltimore, MD, United States

P18 SPONTANEOUS MUTAGENESIS FREQUENCIES CORRELATE WITH AP ENDONUCLEASE ABUNDANCE IN MURINE SPERMATOGENIC CELLS
Perez M, Hildreth K, Herbert DC', McMahan CA', Izumi T', Mitra S'. Walter CA)' 1, 'University of Texas Health Science Center at San Antonio, San Antonio, TX, United States, 2South Texas Veteran’s Health Care System, San Antonio, TX, United States, 3University of Texas Medical Branch at Galveston, Galveston, TX, United States

P20 MUTAGEN-EXPOSED FEMALE GERM CELLS MEDIATE DELAYED MUTAGENESIS IN EARLY STAGE EMBRYOS
Gresham CS, Norris MB, Winn RN, ABEL University of Georgia, Athens, GA, United States

P22 TISSUE-SELECTIVE AND SEX DIFFERENCES IN BRAIN OF MICE EXPOSED TO IONIZING RADIATION
Koturbash I', Kutanzi K', Kolb B', Kovalchuk O'. 'University of Lethbridge, Lethbridge, AB, Canada, 2Canadian Centre for Behaviour Neuroscience, Lethbridge, AB, Canada

Mutagenesis and Carcinogenesis

P26 MATERNAL DIOXIN EXPOSURE COMBINED WITH A DIET HIGH IN FAT INCREASES MAMMARY CANCER INCIDENCE THROUGH INDUCTION OF ESTROGEN METABOLIZING GENES CYP1B1 AND COMT
La Merrill M', Harper R', Birnbaum L',, Cardiff R', Threadgill D'. 'University of North Carolina, Chapel Hill, NC, United States, 2Mt Sinai School of Medicine, New York, NY, United States, 3US EPA, Research Triangle Park, NC, United States, 4University of California, Davis, CA, United States

P28 ABSTRACT WITHDRAWN
Lippert MJ, Alexander MP, Crall WC, Holmes MP. Saint Michael’s College, Colchester, VT, United States
P32  DGGE-BASED DETECTION OF MITOCHONDRIAL tRNA GENE AND FLANKING REGION MUTATIONS IN UMBILICAL CORD TISSUE FROM HIV-1 UNINFECTED INFANTS RECEIVING PERINATAL AZT-BASED THERAPIES
Torres SM1,2, Walker DM3, Selkup SK4, Copeland WC5, Walker VE6, 1Lowel Respiratory Research Institute, Albuquerque, NM, United States, 2University of New Mexico, Albuquerque, NM, United States, 3BioMosaics Inc., Burlington, VT, United States, 4SKS Consulting Services, Silver City, NC, United States, 5NIEHS, National Institutes of Health, Research Triangle Park, NC, United States

P34  COMPARISON OF MicroRNA EXPRESSION, GENOMIC GENE EXPRESSION, DNA ADDUCTS, MUTATION INDUCTION, AND TUMOR INCIDENCE FOR CARCINOGENESIS OF ARISTOLOCHIC ACID IN RAT KIDNEY
Chen T, Pearce M, Mei N, Guo L. National Center for Toxicological Research, FDA, Jefferson, AR, United States

P36  GENE EXPRESSION OF PHASE I AND PHASE II METABOLIZING ENZYMES AND PAH-DNA ADDUCT FORMATION IN HUMAN PROSTATE AS RISK FACTORS IN PROSTATE CANCER ETIOLOGY
John K1, Singh PB2, Pratt MM3, Ragavan N4, Cole KC5, Maranthena SS6, Phillips DH7, Martin FJ8, 1National Cancer Institute, NIH, Bethesda, MD, United States, 2Lancaster University, Lancaster, United Kingdom, 3Institute of Cancer Research, Surrey, United Kingdom

P38  GENOTOXICITY OF TITANIUM DIOXIDE (TIO2) IN HUMAN BRONCHIAL EPITHELIAL CELLS IN VITRO
Falck GC-M1, Lindberg HK2, Savolainen K3, Norppa H4, 1Finnish Institute of Occupational Health, Helsinki, Finland, 2Tampere University of Technology, Tampere, Finland

P40  PROTEOMIC PROFILING OF URINARY BLADDERS FROM MICE EXPOSED TO SODIUM ARSENITE
Winnik WM1, Chilakapati J, Wallace K, Kitchin KT, Ortiz PA. U.S. Environmental Protection Agency, Research Triangle Park, NC, United States

P42  ABUNDANT EXPRESSION OF CYP1A1 IS POSITIVELY, WHILE CYP1B1 AND NQO1 ARE NEGATIVELY, ASSOCIATED WITH BENZO(a)PYRENE (BP)-DNA ADDUCT FORMATION IN NORMAL HUMAN MAMMARY EPITHELIAL CELLS (NHMECs)
Einem TL1,2, Divi RL1, Shockley ME1, Keshava C1, Weston A1, Poirier MC1, 1National Cancer Institute, NIH, Bethesda, MD, United States, 2U.S. EPA, Research Triangle Park, NC, United States, 3NIOSH, CDC, Morgantown, WV, United States

P44  EXPLORATION OF THE COMPOSITION OF CHROMATIN BUDS IN THE IN VITRO HUMAN LYMPHOCYTE MICRONUCLEUS TEST
Arango AT1, Serrano L, Camacho R, Montero RD. Instituto de Investigaciones Biomedicas, UNAM, Mexico, DF, Mexico

P46  CELL PROLIFERATION OF Pancreatic β-CELLS IS IMPAIRED BY ARSENITE TREATMENT
Sardo M1, Burns AL2, Salazar A1, Ostrosky-Wegman P1, Diaz-Villaseñor A1, 1Instituto de Investigaciones, UNAM, Mexico DF, Mexico, 2Facultad de Medicina, UNAM, Mexico DF, Mexico

P48  DEPRESSED ANTIoxidant STATUS IN PREGNANT WOMEN ON IRON SUPPLEMENTS: MUTAGENIC IMPLICATIONS
John A1, Fidelia A, Grace T, Abbodoun A, Fasola FA. University of Ibadan, Ibadan, Oyo, Nigeria

P50  THYMIDYLAte SYNTHASE: TUMOR SUPPRESSOR AND ONCOGENE IN SPORADIC BREAsT CANCER?
Barclay B1, Murray DP2. 1Planet Biotechnologies Inc, St Albert, AB, Canada, 2Cross Cancer Institute, Edmonton, AB, Canada

P52  ARREST OF MITOCHONDRIAL RNA POLYMERASE BY THE MALONDIALDEHYDE ADDUCT, MGD
Cline SD1, Lodério MF2, Marnett LJ3, Cameron CE4, Arnold JJ2. 1Mercer University School of Medicine, Macon, GA, United States, 2Penn State University, State College, PA, United States, 3Vanderbilt University School of Medicine, Nashville, TN, United States

P54  GENE POLYMORPHISMS AND THE RISK OF HEAD AND NECK SQUAMOUS CELL CARCINOMA IN BRAZIL
Garcia SMN1, Curioni OA1, Brasilino M2, Kohler P1, Gattás GJF3. 1FMUSP, São Paulo, Brazil, 2Heliopolis Hospital, São Paulo, Brazil

P56  NUCLEAR AND MITOCHONDRIAL MUTATIONS IN CANCER
Bielas IH1, Vermulst M1, Fox EJ2, Ericson NG1, Loeb KR3, Rubin BP4, O’Sullivan JN2, True LD5, Loeb LA6. 1Department of Pathology, University of Washington, WA, United States, 2Centre for Colorectal Disease, Department of Gastroenterology, St. Vincent’s University Hospital, Department of Medicine, University College Dublin, Dublin, Ireland, 3Division of Clinical Research, Fred Hutchinson Cancer Research Center, Seattle, WA, United States, 4Department of Anatomic Pathology and Department of Molecular Genetics, Taussig Cancer Center and the Lerner Research Institute, Cleveland Clinic, Cleveland, OH, United States

Environmental Genotoxins and Risk Assessment
P58  ANTIMUTAGENIC PROPERTIES OF GROUP B VITAMINS
Arriaga-Alva M1, Ruiz-Perez NJ2, Sanchez-Navarrete J, Lopez Del Angel B, Flores-Lozada J. Hospital Juarez De Mexico, Mexico DF, Mexico

P60  THE ROLE OF DIETARY MICRO-NUTRIENT SUPPLEMENTATION TO MAINTAIN GENOMIC STABILITY
Vaglenov A1,2, Shinn B1, Edelbrock M2, Schwaner T3, Simonian A4. 1School of Pharmacy, University of Findlay, Findlay, OH, United States, 2National Center of Radiobiology and Radiation Protection, Sofia, Bulgaria, 3College of Sciences, University of Findlay, Findlay, OH, United States, 4College of Engineering, Auburn University, Auburn, AL, United States

P62  THE MUTAGENICITY AND DIOXIN-LIKE ACTIVITY OF BIODIESEL EMISSIONS
Gagnon ML, White PA. Health Canada, Ottawa, ON, Canada
P64 ANTI-OXIDANT AND ANTI-CLA STOGENIC CAPACITY OF PRICKLY PEAR JUICE
Hernández-Ceruelo A, Madrigal-Santillán E, Valadez-Vega C. Instituto de Ciencias de la Salud, Area Académica de Medicina, Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico

P66 GENOTOXICITY OF METHYLPHENIDATE HYDROCHLORIDE IN THE RHEUSUS MONKEY
Dubrowolsky VN, Shaddock JG, Manjanatha MG, Miura D. 1Battelle Toxicology Northwest, Litron Laboratories, Richland, WA, United States, 2NCTR, Jefferson, AR, United States, 3Teijin, Tokyo, Japan

P68 ENHANCEMENT OF BLEOMYCIN GENOTOXICITY IN YEAST BY CONVENTIONAL AND UNCONVENTIONAL INTERCALATING AGENTS
Hoffmann GR, Laterza AM, Sylvia KE, Tartaglione JP. College of the Holy Cross, Worcester, MA, United States

P70 FLOW CYTOMETRIC EVALUATION OF MICRONUCLEATED POLychROMATIC ERYTHROCYTES IN BONE MARROW AND MICRONUCLEATED RETICULOCYTES IN PERIPHERAL BLOOD FOLLOWING ACUTE AND REPEAT DOSING REGIMENs OF CHEMICALs
Shi J, Krsmanovic B, Torous D. 1BioReliance Corporation, Rockville, MD, United States, 2Litron Laboratories, Rochester, NY, United States

P72 CROSS-VALIDATION OF MINIATURE AMES AND IN VITRO MICRONUCLEUS ASSAYS TO FACILITATE EARLIER GENOTOXICITY SCREENING DURING LEAD OPTIMIZATION

P74 MINIATURIZATION AND FURTHER AUTOMATION OF THE IN VITRO MICRONUCLEUS ASSAY
Bruce S, Phonethawatkul S, Avlasevich S, Bemis J, Dertinger S. Litron Laboratories, Rochester, NY, United States

P76 A MINI VERSION OF THE MOUSE LYMPHOMA CELL THYMIDINE KINASE LOCUS ASSAY
Meng Q, Hackfeld L, Hodge R. Battelle Toxicology Northwest, Richland, WA, United States, 2University of Texas Medical Branch at Galveston, Galveston, TX, United States

P78 MOUSE MUTATION ASSAY BASED ON THE PIG-A GENE
Phonethawatkul S, Bryce S, Bemis J, Dertinger S. Litron Laboratories, Rochester, NY, United States

P80 IMPAIRED MITOCHONDRIAL FUNCTION MAY CAUSE LIVER TOXICITY IN NEVIRAPINE-TREATED B6C3F1 MICE
Dai YG, Moland CL, Lee T, Branham WS, Beland FA, VonTungeln LS, Fuscoe JC. NCTR, Jefferson, AR, United States

P82 DIETARY POLYPHENOLS AS TOPOISOMERASE II POISONS: B RING AND C RING SUBSTITUTENTS DETERMINE THE MECHANISM OF ENZYME-MEDIATED DNA CLEAVAGE ENHANCEMENT
Bandele OJ, Clawson SJ, Dsheroff N. Vanderbilt University School of Medicine, Nashville, TN, United States

P84 GENOTOXICITY OF CARBON NANOMATERIALS IN VITRO
Lindborg HK, Falck GC-M, Suohon S, Järventaus H, Catalán J, Vippola M, Vanhala E, Savolainen K, Norppa H. 1Institute of Occupational Health, Helsinki, Finland, 2University of Zaragoza, Zaragoza, Spain, 3Tampere University of Technology, Tampere, Finland

P86 VALIDATION OF A MULTI-ENDPOINT ASSAY IN RATS: BONE MARROW MICRONUCLEUS, COMET AND FLOW CYTOMETRIC PERIPHERAL BLOOD MICRONUCLEUS
Bowen D, Henderson D, Kidd D, McGarrey S, Pearce G, Torous D, Whitwell J, Williams L, Kirkland D. 1Covance Laboratories, Harrogate, United Kingdom, 2Litron Laboratories, New York, NY, United States

P88 DOSE-RESPONSE RELATIONSHIP, KINETICS OF FORMATION AND PERSISTENCE OF S-(2-(N7-GUANYL) ETHYL)GLUTATHIONe DNA ADDUCT IN LIVERS OF CHANNEL CATFISH (ICtALuRUS PUNCTATuS) EXPOSED IN VIVO TO 1, 2-DICHLOROETHANe
Means JC, Jemal A, Southern Illinois University, Carbondale, IL, United States, 2American Cancer Society, Atlanta, GA, United States

P90 EVALUATION OF THE BUTTER FLAVORING DIACETYL AND THE FLUOROCHEMICAL PAPER ADDITIVE LODYNE P-280® FOR MUTAGENICITY
Whittaker P, Begley TH, San RH, Dunkel VC. 1BioReliance, Rockville, MD, United States, 2US FDA, College Park, MD, United States, 3Consultant, Gaithersburg, MD, United States, 4Consultant, Bethesda, MD, United States

P92 A NOVEL MUTAGENIC POTENCY RATIO METHOD TO ASSESS THE EXCESS LIFETIME CANCER RISK OF COMPLEX PAH MIXTURES IN CONTAMINATED SOILS
Lenius CL, Long A, Lundstedt S, Tyklind M, Lambert IB, White PA. 1Mechanistic Studies Division, Safe Environments Programme, HECOS, Health Canada, Ottawa, ON, Canada, 2Department of Chemistry, University of Umeå, Umeå, Sweden, 3Department of Biology, Carleton University, Ottawa, ON, Canada

P94 MUTAGENIC EFFECTS OF ACRYLAMIDE AND GLYCIDIAMIDE IN THE TESTES OF BIG BLUE MICE
Asumma M, McDaniel L, Manjanatha M, Shelton S, Mei N. Division of Genetic and Reproductive Toxicology, National Center for Toxicological Research, Jefferson, AR, United States

P96 MICRONUCLEUS FREQUENCY IN HAMSTERS PERIPHERAL BLOOD
Salazar AM, López-Cuebas E, León S, Flisser A, Ostrosky-Wegman P. 1Instituto de Investigaciones Biomédicas. UNAM, México DF, Mexico, 2Facultad de Medicina, Mexico DF, Mexico

P98 REDUCTION OF FALSE POSITIVES IN IN VITRO GENOTOXICITY ASSAYS
Fowler P, Jeffrey L, Young J, Kirkland D. Covance Laboratories Ltd, Harrogate, UK, United Kingdom

P100 SKIN AND LUNG COMET ASSAYS: CURRENT DEVELOPMENTAL STATUS
Williams L, McGarry S. Covance Laboratories Ltd, Harrogate, United Kingdom
P102  COMBINED PROTOCOL FOR SIMULTANEOUS MEASUREMENT OF MICRONUCLEATED ERYTHROCYTE FREQUENCIES AND DNA DAMAGE IN RODENTS

P104  VALIDATION OF THE IN VITRO MICRONUCLEUS ASSAY AND FLUORESCENT IN SITU HYBRIDIZATION (FISH) IN HUMAN LYMPHOCYTES
Farabaugh CS, Roberts DJ, Roy SK, Middendorf CA, Stankowski, Jr LF. Covance Laboratories, Inc., Vienna, VA, United States

P106  APPLICATION OF THE ACHELULAR COMET ASSAY TO GENOTOXICITY TESTING FOR PHARMACEUTICALS
Vasquez MZ. Helix3 Inc., Morrisville, NC, United States

P108  VALIDATION OF FLOW CYTOMETRY TO ASSESS MITOTIC INDEX IN THE HUMAN LYMPHOCYTE CHROMOSOME ABERATION ASSAY
Roberts DJ, Middendorf CA, Stojhovic G, Roy SK, Stankowski Jr LF. Covance Laboratories, Vienna, VA, United States

P110  TARGET ORGAN SELECTION FOR THE IN VIVO COMET ASSAY: GENOTOXICITY VERSUS TUMORIGENESIS
Sivers CL, Vasquez MZ. Helix3 Inc., Morrisville, NC, United States

P112  DETECTION OF WEAK MUTAGENS IN TRANSGENIC RODENT MUTATION ASSAYS: CHALLENGING THE INTERNATIONAL WORKSHOPS ON GENOTOXICITY TESTING PROTOCOL RECOMMENDATIONS
Singer TM, Douglas GR, Gingerich JD, Williams A, Soper L, Lambert IB. 1Mutagenesis Section, Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada, 2Department of Biology, Carleton University, Ottawa, ON, Canada, 3Biostatistics Section, Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada

P114  EFFECT OF CARBON NANOTUBES-DNA INTERACTION ON THE CELLULAR GENOMIC STABILITY
Barajas Lemus C, Camacho Carranza R, Espinoza Aguirre J, Hernandez Ojeda SL. Instituto de Investigaciones Biomedicas UNAM, Mexico, Mexico

P116  POTENTIAL ROLE OF ENVIRONMENTAL MUTAGENS IN THE DEVELOPMENT OF HUMAN LYMPHOID MALIGNANCIES

Tuesday, October 21

8:00 AM–11:30 AM  Rio Mar Atrium
REGISTRATION

7:00 AM–8:30 AM  Parrot
BREAKFAST MEETINGS

7:00 AM
MOLECULAR EPIDEMIOLOGY  Caribbean 1
SPECIAL INTEREST GROUP

Chairperson: Radim J. Sram, Institute of Experimental Medicine and William W. Au, University of Texas Medical Branch

7:00 AM  PIG-A ASSAY, NEW METHOD FOR HUMAN BIOMONITORING
Richard J. Albertini, University of Vermont

7:25 AM  CYTOGENETIC BIOMARKERS OF CANCER RISK: WHAT NEXT
Hannu Norppa, Finnish Institute of Occupational Health

7:50 AM  THE ROLE OF MOLECULAR EPIDEMIOLOGY TO UNDERSTAND THE IMPACT OF GLOBAL WARMING ON HUMAN HEALTH
Nina T. Holland, University of California, Berkeley

8:15 AM  DISCUSSION: FUTURE ACTIVITIES OF SIG
Molecular epidemiology plays a major role in the assessment of the causative associations between exposure to environmental agents, host factors of susceptibility, and the risks of genetic diseases including cancer and birth defects. This SIG identifies the latest research advances in the development of valid biomarkers of exposure, susceptibility, and disease risks.

RISK ASSESSMENT  Caribbean 3
SPECIAL INTEREST GROUP

Chairpersons: Nagu Keshava, U.S. Environmental Protection Agency and David A. Eastmond, University of California, Riverside

Primary Sponsor: Boehringer Ingelheim Pharmaceuticals

7:00 AM  WELCOME, INTRODUCTION, AND DISCUSSION OF THE SIG ACTIVITIES

7:15 AM  EUROPEAN EMS GENOTOXICITY AND RISK ASSESSMENT DISCUSSIONS: AN UPDATE
Speaker: To be Announced

7:30 AM  U.S. EPA MUTAGENIC MODE-OF-ACTION: WHERE IT STANDS;
Rita Schoeny, U.S. Environmental Protection Agency

7:45 AM  RELEVANCE AND FOLLOW-UP OF POSITIVE RESULTS IN IN VITRO GENETIC TOXICITY TESTING: AN ILSI/HESI ACTIVITY UPDATE
Bhaskar Gollapudi, Dow Chemicals
The Risk Assessment Special Interest Group (SIG) within the Environmental Mutagen Society is a mid-sized, eclectic, and congenial group of individuals with shared interests in the broad area of risk assessment, particularly as it relates to genetic toxicology, mutagenesis, and carcinogenesis. This core group of scientists within EMS has been assembling each year at the EMS Meeting since 1997 to discuss a wide range of topics that are pertinent to risk assessment. Topics that have been discussed in the Risk Assessment SIG meetings include different approaches for risk analysis and low-dose extrapolation, the use of cancer biomarkers, the use of transgenic animal data in risk assessment, different government agency approaches to risk assessment, establishing chemical mode-of-action, and the application of the genetic toxicology tests to risk assessment.

8:30 AM–10:30 AM Rio Mar 7–8

SYMPOSIUM 12

THE U-SHAPED CURVE: WHEN MORE IS NOT BETTER

Chairpersons: David J. Waters, Purdue University and
Michael D. Waters, Integrated Laboratory Systems

Contributing Sponsor: Integrated Laboratory Systems, Inc.

8:30 AM S66 THE U-SHAPED CURVE FOR ENVIRONMENTAL EXPOSURES
Michael D. Waters, Integrated Laboratory Systems

9:00 AM S67 THE U-SHAPED CURVE IN THE PHARMACEUTICAL INDUSTRY
John A. Ives, The Samueli Institute

9:30 AM S68 THE U-SHAPED CURVE FOR CANCER-FIGHTING NUTRIENTS
David J. Waters, Purdue University

10:00 AM S69 EXERCISE TRAINING AND PHYSICAL ACTIVITY IN A U-SHAPED WORLD
Michael Flynn, Purdue University

8:30 AM–10:30 AM Rio Mar 6

SYMPOSIUM 13

LOW DOSE RADIATION-INDUCED GENOME AND EPIGENOME INSTABILITY

Chairpersons: William F. Morgan, University of Maryland,
Baltimore and Matthew A. Coleman, Lawrence Livermore
National Laboratory

Primary Sponsor: National Institute of Allergy and Infectious Diseases

8:30 AM S70 LOW DOSE RADIATION INDUCED GENOMIC AND EPIGENOMIC INSTABILITY
William F. Morgan, University of Maryland,
Baltimore
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<td>9:15 AM</td>
<td><strong>A THIRD COMPLEMENTATION GROUP OF UV-SENSITIVE SYNDROME WITH A</strong></td>
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<td>of Genomes and Cancer, Institut Gustave Roussy, Villejuif, France</td>
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<td><strong>A REGULATORY ROLE FOR ATM IN PRESERVATION OF DNA END-STABILITY</strong></td>
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<td><strong>INTERVENTION TO SENSITIZE BREAST CANCER CELLS TO RADIATION AND</strong></td>
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<td>2Massey Cancer Center, Virginia Commonwealth University, Richmond, VA,</td>
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<td><strong>PATHWAYS MAINTAINING EMBRYONIC STEM CELL GENOMIC INTEGRITY</strong></td>
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<td><strong>HUMAN POLQ AND POLN AS DNA DAMAGE TOLERANCE ENZYMES</strong></td>
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<td>1Department of Carcinogenesis, UT MD Anderson Cancer Center, Science</td>
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**10:45 AM–11:45 AM**

**PLENARY LECTURE (PL3)**

**UNRAVELING GENETIC REGULATORY NETWORKS OF MAMMALIAN RETROELEMENTS**

Kenneth S. Ramos, University of Louisville

**11:45 AM–1:15 PM**

**EMS BUSINESS MEETING**

Travel Awards Presented

**1:15 PM–7:30 PM**

**OPEN TIME**

**2:00 PM–6:30 PM**

**OPTIONAL TOUR OF OLD SAN JUAN**

Separate Registration Required

**7:30 PM–11:30 PM**

**SOCIETY BANQUET AND EMS AWARDS PRESENTATION**

Awards Presentation by President Andrew J. Wyrobek

 Alexander Hollaender Award
 EMS Award
 EMS Service Award
Wednesday, October 22

8:00 AM–12:00 NOON  Rio Mar Atrium  REGISTRATION

7:30 AM–9:00 AM  MORNING MEETINGS
2009 PROGRAM COMMITTEE (2ND MEETING)  Caribbean 1
TOWN HALL MEETING  Caribbean 3

Opportunity for EMS members to provide input into the future directions of our Society.

9:00 AM–11:00 AM  Rio Mar 7–8  PLATFORM SESSION 3
EPIGENETIC MECHANISMS: DAMAGE-INDUCED EPIGENOME CHANGES

Chairpersons: Dana Dolinoy, University of Michigan and David Sedwick, Case Western Reserve University

Platform presenter designated by underlined author

9:00 AM  4  HIGH MOBILITY GROUP PROTEIN B1 ENHANCES DNA REPAIR AND CHROMATIN MODIFICATION FOLLOWING DNA DAMAGE
Lange SS, Vasquez KM. Department of Carcinogenesis, University of Texas M.D. Anderson Cancer Center, Science Park-Research Division, Smithville, TX, United States [Previously in Poster Session I]

9:15 AM  18  EPIGENETIC ALTERATIONS IN HIGH AND LOW LET RADIATION INDUCED GENOMIC INSTABILITY
Aybar U, Morgan WF, Baulch JE. University of Maryland, Baltimore, Baltimore, MD, United States

9:30 AM  19  EPIGENETIC MECHANISMS UNDERLY ESTROGEN- AND RADIATION-INDUCED MAMMARY CARCINOCGENESIS
Kutanzi K, Koturbash I, Kovalchuk O. University of Lethbridge, Lethbridge, AB, Canada

9:45 AM  20  CHEMICAL STRESSORS IN FATHERS ALTER ALLELE-ASSOCIATED DNA METHYLATION OF THE 45S RNA IN PROGENY
Anderson LM1, Ge X', Spurrier JM', McCann SD', Wang C', Crawford EB1, Fields JR', Leightly RM', Quinones OA2, Alword WQ', Shiao YH'. INCFrederick, Frederick, MD, United States, 2DMS, Inc., Frederick, MD, United States

10:00 AM  21  BAX SPlice VARIANT EXPRESSION FOLLOWING RADIATION EXPOSURE IN HUMAN LYMPHOBLASTOID CELLS
Banda M, Thomas RA, Tucker JD. Wayne State University, Detroit, MI, United States

10:15 AM  22  CYTOSINE METHYLATION IN CPG REPEATS CAUSES GENETIC INSTABILITY BY AFFECTING DNA AND CHROMATIN STRUCTURES
Wang G, Vasquez KM. University of Texas M.D. Anderson Cancer Center, Smithville, TX, United States

10:30 AM  23  FUNCTIONAL INTERACTION OF HUMAN TDG WITH FMRP AND XPG IN BASE EXCISION REPAIR OF T/G MISMATCHES
Hang B, Budworth H, Sarker AI, Cooper PK. Laurence Berkeley National Laboratory, Berkeley, CA, United States

10:45 AM  24  ROLE OF CHROMATIN REMODELING IN DNA REPAIR, CELL CYCLE RESPONSE, AND TUMOR SUPPRESSION
Venkatachalam S, Nagarajan P, Rajagopal S, Samaan G, Oanem T, Donnell R. University of Tennessee, Knoxville, TN, United States

9:00 AM–9:50 AM  Rio Mar 6  TOPICAL REVIEW 1 (TR1)
FUNCTIONAL APPROACHES IN STUDYING INTER-INDIVIDUAL VARIABILITY OF DNA REPAIR AND CANCER RISK
Tamar Paz-Elizur, Weizmann Institute of Science, Israel

10:00 AM–10:50 AM  Rio Mar 6  TOPICAL REVIEW 2 (TR2)
REPAIR OF IONIZING RADIATION-INDUCED DNA DOUBLE-STRAND BREAKS: COMPLEX PATHWAYS FOR COMPLEX LESIONS
Susan Lees-Miller, University of Calgary, Alberta, Canada

11:00 AM–12:00 NOON  Rio Mar 6  PLEnARY LECTURE (PL4)
SOMATIC CELL GENETICS FOSTERED DNA REPAIR
EMS AWARD RECIPIENT
Larry H. Thompson, Lawrence Livermore National Laboratory

12:00 NOON–1:15 PM  LUNCH ON OWN

Wednesday
1:15 PM–3:15 PM   Rio Mar 6
SYMPOSIUM 14
SPONTANEOUS AND OXIDATIVE MUTAGENESIS IN VIVO
Chairperson: Takehiko Nohmi, National Institute of Health Sciences, Japan

1:15 PM   S75  RECENT TOPICS OF MUTATION RESEARCH WITH GPT DELTA MICE/RATS
Takehiko Nohmi, National Institute of Health Sciences, Japan

1:35 PM   S76  MUTATION SHOWERS
Steve S. Sommer, City of Hope

2:00 PM   S77  PREVENTION OF OXIDATIVE MUTAGENESIS BY MUTYH: IMPlication IN HUMAN CANCER
Teruhisa Tsuzuki, Kusama University, Japan

2:25 PM   S78  ANTIOXIDANTS SUPPRESS GENETIC INSTABILITY AND LYMPHOMA IN ATM DEFICIENT MICE
Robert Schiestl, University of California, Los Angeles

2:50 PM   S79  WHAT ΦX174 HAS TAUGHT US ABOUT THE SPONTANEOUS MUTATION FREQUENCY OF TRANSGENIC MUTATION TARGETS
Carrie R. Valentine, National Center for Toxicological Research, U.S. FDA

1:15 PM–3:15 PM   Rio Mar 7–8
SYMPOSIUM 15
DEVELOPMENT OF NOVEL, RAPID, AND PORTABLE ENVIRONMENTAL DETECTION METHODS
Primary Sponsor: U.S. Department of Homeland Security

1:15 PM   S80  ENVIRONMENTAL DETECTION STRATEGY FOR HOMELAND SECURITY

1:35 PM   S81  DEVELOPMENT OF A HAND-HELD GAS CHROMATOGRAPH FOR DETECTION OF CHEMICAL HAZARDS
Richard J. Kottenstette, Sandia National Laboratories

2:00 PM   S82  LISA MANPORTABLE: A RAMAN SPECTROSCOPY BASED STAND-OFF CHEMICAL DETECTOR
Jeremy Rezac, ITT Industries

2:25 PM   S83  RAPID MULTIPLEXED NUCLEIC ACID AND ANTIBODY BASED SENSOR FOR MICROBIAL DETECTION
Michael R. Meyer, ICx Technologies

2:50 PM   S84  MICROBIAL DETECTION USING SINGLE MOLECULE DNA BARCODES
David Hoey, U.S. Genomics, Inc.

3:15 PM–5:20 PM   Rio Mar 6
SYMPOSIUM 16
EPIGENETIC MECHANISMS, DNA REPAIR, AND CHROMATIN
Chairperson: Olga Kovalchuk, University of Lethbridge
Primary Sponsor: Department of Energy

3:15 PM   S85  THYMINE DNA GLYOSYLASE, DNA BASE EXCISION REPAIR AND (EPI) GENOME MAINTENANCE
Primo Schär, University Basel, Switzerland

3:40 PM   S86  DNA DAMAGE, EPGENETIC ALTERATIONS AND LIVER CARCINOGNESIS
Igor Pogribny, National Center for Toxicological Research, U.S. FDA

4:05 PM   S87  POLY(ADP-RIBOSYL)ATION CAUSES RAPID CHROMATIN DECONDENSATION AT SITES OF MICRO-IR-INDUCED DOUBLE-STRAND BREAKS
Michael Hendzel, Cross Cancer Institute and University of Alberta

4:30 PM   S88  CHROMATIN ASSEMBLY FACTORS AND THE CHALLENGES OF DNA REPLICATION AND REPAIR
Genevieve Almouzni, Institut Curie, Paris

4:55 PM   S89  GENOME ORGANIZER SATB1 IN DNA REPAIR
Terumi Kohwi-Shigematsu, Lawrence Berkeley National Laboratory

3:15 PM–5:15 PM   Rio Mar 7–8
PLATFORM SESSION 4
ENVIRONMENTAL EXPOSURES AND CARCINOGENIC RISK
Chairpersons: Catherine B. Klein, New York University School of Medicine and Francesco Marchetti, Lawrence Berkeley National Laboratory
Platform presenter designated by underlined author

3:15 PM   25  THE ADAPTIVE RESPONSE IN DIFFERENT GROUPS OCCUPATIONALLY EXPOSED TO IONIZING RADIATION AND CHEMICALS
Vaglenov A1,2, Parker D1, Ernsthausen L1, Marcos R1, Creaus A1, Simonian A1. 1Pharmacy School, University of Findlay, Findlay, OH, United States, 2National Center of Radiobiology and Radiation Protection, Sofia, Bulgaria, 3Grupo de Mutagenesi, Autonomous University of Barcelona, Barcelona, Spain, 4College of Engineering, Auburn University, Auburn, AL, United States
3:30 PM 26  TIO2 NANOPARTICLES INDUCE GENETIC INSTABILITY AND OXIDATIVE DAMAGE IN VIVO IN MICE
Trouiller B, Solaimani P, Reliene R, Schiestl R. UCLA Schools of Medicine and Public Health, Los Angeles, CA, United States

3:45 PM 27  BIOMARKERS OF EXPOSURE AND EFFECT IN MIGRANT FARMWORKER CHILDREN OF MEXICAN ORIGIN FROM URBAN AND AGRICULTURAL REGIONS OF TEXAS
Trouiller B, Solaimani P, Reliene R, Schiestl R. UCLA Schools of Medicine and Public Health, Los Angeles, CA, United States

4:00 PM 28  LONGTERM EFFECTS OF FIRST-HAND AND SECOND-HAND SMOKE ON SPERM FUNCTION AND DNA INTEGRITY
Polyzos A, Gundel L, Destaillats H, Marchetti F. Lawrence Berkeley National Laboratory, Berkeley, CA, United States

4:15 PM 29  CENTRAL NERVOUS SYSTEM EXPRESSION OF TROPTONIN T 1 AS A BIOMARKER OF NEUROPSYCHIATRIC STRESS AFTER INTERFERON-α, IONIZING RADIATION AND KETAMINE TREATMENT
Lowe X1,2, Marchetti F1, Lu X1, Wyrobek A1, Lawrence Berkeley National Laboratory, Berkeley, CA, United States, 2Kaiser Permanente Medical Group, Inc, Hayward, CA, United States, 3Lawrence Livermore National Laboratory, Livermore, CA, United States

4:30 PM 30  CENTROSOMAL AMPLIFICATION, A GENOTOXIC MECHANISM COMMON TO NUCLEOSIDE ANALOGS, COULD BE INHIBITED BY THE ANTIOXIDANT WR 1065
Yu M, Olivero OA, Poirier MC. National Cancer Institute, NIH, Bethesda, MD, United States

4:45 PM 31  LONG-TERM EXPOSURE TO SUBMICROMOULAR ARSENITE INDUCES CHROMOSOME INSTABILITY VIA BYPASS OF THE SPINDLE ASSEMBLY CHECKPOINT IN MAMMALIAN CELLS
Mauro M1,2, Leszcynska J1, Barbata G2, Caradonna F1, Scianrello G2, Rossman TG1, Klein CB1. 1NYU School of Medicine, Department of Environmental Medicine, Tuxedo, NY, United States, 2Dipartimento di Biologia Cellulare e dello Sviluppo ‘A. Monroy’, Universita’ di Palermo, Palermo, Sicily, Italy

5:00 PM 32  MOVING BEYOND TRADITIONAL GENETOXICITY TESTING: DEVELOPMENT OF NEW ANIMAL ALTERNATIVE GENETOXICITY ASSAYS FOR MICRONUCLEI AND COMET IN 3D HUMAN SKIN MODELS
Aardema M1, Reisinger K2, Corvi R3, Curren R1, Krul C1, Pfuhler S1, Ouedraogo G1. 1The Procter & Gamble Co, Cincinnati, OH, United States, 2Phenion/Henkel, Dusseldorf, Germany, 3ECVAM, Ispra, Italy, 4Institute for In Vitro Sciences, Gaithersburg, MD, United States, 5TNO, Zeist, Netherlands, 6The Procter & Gamble Co, Marly, Switzerland, 7L’Oreal, Paris, France

6:00 PM–8:00 PM 32  EMS COUNCIL MEETING
**EXHIBITS**

Exhibits and Posters are located in Rio Mar 1–5 and will be open at the following times:

- **Sunday, October 19, 2008**: 4:00 PM–10:30 PM
- **Monday, October 20, 2008**: 8:30 AM–10:30 PM
- **Tuesday, October 21, 2008**: 8:30 AM–1:00 PM

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Mississauga, ON L5N 2X7  
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Tel: (905) 542-2900, ext. 292  
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Skokie, IL 60077
United States

Tel: (847) 972-2500
Fax: (847) 972-2506
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Map of Wyndham Rio Mar Resort

Conference Center Level 1

Mezzanine Meeting Rooms Level 2
Wyndham Rio Mar Restaurants

BOLEROS LOUNGE
Tapas lounge offering tempting appetizers and late night snacks. Located on the first floor, east wing.
Open from 5:00 PM–12:00 MIDNIGHT

ERL CAFÉ
Enjoy the most exquisite pastries any time of the day with a delicious hot cup of coffee. Located on the 3rd floor, next to the casino.
Open from 6:00 AM–12:00 MIDNIGHT

GRILLE ROOM
Open from 6:00 PM–10:00 PM (Reservations Required)

IGUANA’S PUB
Serving sandwiches, wraps and local cuisine. Located at the Rio Mar Country Club. Complimentary Shuttle provided every 15 minutes at the main entrance.
Open from 11:00 AM–10:00 PM

LOBBY BAR
Enjoy your favorite drink or any of our tropical specialties. Located on the third floor, west wing.
Open from 12:00 NOON–1:00 AM

PALIO
Our award-winning restaurant indulges your good taste with Italian specialties and gracious service in elegant surroundings. Located on the first floor, east wing.
Open from 6:00 PM–11:00 PM (Reservations Required)

MARBELLA
International, casual and family friendly restaurant. Located on the first floor, west wing.
Open from 6:30 AM–11:00 PM

SEABREEZE
Al fresco casual restaurant. Located outside next to the pool, west patio.
Open from 11:00 AM–4:00 PM

SHIMAS
Delight your taste for the Orient at our Asian Bistro and Sushi Bar. Located on the first floor, west wing.
Open 6:00 PM–10:30 PM (Reservations Required)

TIKI GRILL
Take in the beach, beautiful ocean view and live music at this casual beach bar and grill. Relax and enjoy a tropical beverage and beach menu favorites including hamburgers, hotdogs, wings, and salads.
Open from 11:00 AM–7:00 PM

• Children menu available in all restaurants.
• Restaurants dress code is Casual-Elegant, jeans and nice shorts are allowed.
• Parties over 10 people will be divided into three tables next to each other depending on the restaurants floor plan and space availability.
• All reservations are held for 15 minutes after the reservation time.
• Every reservation should be canceled two hours prior to schedule time.
• There is a $50 charge per person for “no-shows,” if guest fail to cancel the reservation.

To check availability and to make dinner reservations please contact Restaurant Reservations or Concierge at (787) 888-6000 ext. 5220 or 81 from a hotel phone. For information on other restaurants in the area please speak to the hotel concierge.
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  - Repeat Dose In Vivo COMET Assay
  - In Vitro Micronucleus Assay
- A Full Range of Tier II assays, including:
  - In Vivo Rodent COMET
  - SHE Transformation
  - In Vivo UDS liver
- Biomarker Screening Assays, including:
  - Ames and Ames II
  - GreenScreen Human Cell (with and without S9)

Mammalian Toxicology

- Transgenic Carcinogenicity Assays, including
  - TgrasH2
  - P53 +/-
  - Tg.AC
- Biodistribution and toxicology of DNA-based therapeutics
- Acute through chronic toxicity assays with drugs, chemicals, vaccines and DNA-based therapeutics

For more information please visit our booth #2 or www.bioreliance.com/toxicology_intro.html.
40th Annual Meeting
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Genomics in the Environmental Century
St. Louis, Missouri

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