



ENVIRONMENTAL MUTAGEN SOCIETY

Thirty-Fifth Annual Meeting

Genes, Mutations and Disease: *The Environmental Connection*

**Pittsburgh Hilton Towers, Pittsburgh, PA
October 2-6, 2004**

The Environmental Mutagen Society was founded in 1969 and is incorporated under the laws of the District of Columbia. Its purpose is to encourage the study of mutagens in the human environment, particularly as they may affect public health, and to engage in and sponsor research and the dissemination of information related to mutagens. Membership is open to all interested scientists.

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National Center on Toxicogenomics
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National Institute of Environmental Health Sciences
The Ellison Medical Foundation
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GlaxoSmithKline
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BRONZE

Boehringer Ingelheim Pharmaceuticals, Inc.
FDA, Center for Drug Evaluation and Research

EVENTS BEING SPONSORED

Saturday, October 2

Forum
FDA, Center for Drug Evaluation and Research

Student Poster Session and Welcoming Reception
Genetic Toxicology Association and Pfizer Global Research and Development

Monday, October 4

Risk Assessment Breakfast
Boehringer Ingelheim Pharmaceuticals, Inc.

Morning and Afternoon Breaks
BioReliance





EMS 2004 Thank You!

EMS sincerely appreciates the effort and hard work of the following people who have helped make this a successful and worthwhile meeting.

Program Committee Members

Chair: Leona D. Samson
C. Sid Aaron
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Aisar Atrakchi
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James F. Crow
David DeMarini
Kathleen Dixon
Paul Doetsch
Rosalie K. Elespuru
Bevin P. Engelward
Patricia Foster
Sheila M. Galloway

Other Key Individuals

John G. DeLuca
Barry N. Ford
Kay Walsh
Suzanne Wright





EXHIBIT HOURS

Sunday October 3, 2004 5:30 PM – 7:30 PM
Monday October 4, 2004 5:30 PM – 7:30 PM
Tuesday October 5, 2004 9:30 AM – 12:30 PM

POSTER SET-UP AND TAKE-DOWN SCHEDULE

Assigned poster number to match numbers on poster boards

Session	Set-up	Take-down
Sunday	by 3:00 PM	at 7:30 PM
Monday	by 2:00 PM	at 7:30 PM
Tuesday	by 8:00 AM	at 12:30 PM



Poster presenters not attending another session during afternoon are encouraged to attend their posters. All Poster presenters should attend their posters during the late afternoon or morning poster sessions.

FUTURE MEETINGS

September 3-8, 2005
Hyatt Regency San Francisco
San Francisco, California

September 16-22, 2006
Hyatt Regency Vancouver
Vancouver, British Columbia





SATURDAY, OCTOBER 2, 2004

7:30 AM – 9:30 AM

Executive Board Meeting
Duquesne Room

9:30 AM – 12:30 PM

EMS Council Meeting
Benedum Room

11:30 AM - 6:00 PM

Registration
Ballroom Foyer





SATURDAY, OCTOBER 2, 2004

1:30 PM – 4:40 PM

FORUM

The SHE Cell Transformation Assay Is Back! Should It Be?

Ballroom 3

Organizer: Aisar Atrakchi, U.S. FDA

Sponsor: FDA, Center for Drug Evaluation and Research

1:30 PM – 1:35 PM	Introduction <i>Aisar Atrakchi, U.S. FDA</i>
1:35 PM – 2:10 PM	SHE: A Cell Transformation Assay, Historical Perspectives, Techniques and Application <i>James Klaunig, Indiana University School of Medicine</i>
2:10 PM – 2:45 PM	Performance of this <i>In Vitro</i> Model for Predicting Rodent Carcinogenicity <i>Brian Myhr, Covance Laboratories</i>
2:45 PM – 3:00 PM	Break
3:00 PM – 3:35 PM	Pharmaceutical Development and the SHE Cell Transformation Assay <i>James S. Harvey, GlaxoSmithKline</i>
3:35 PM – 4:10 PM	The Role of the SHE Cell Transformation Assay in Drug Development <i>David Jacobson-Kram, U.S. FDA</i>
4:10 PM – 4:40 PM	Panel Discussion and Open Forum





SATURDAY, OCTOBER 2, 2004

5:00 PM – 8:00 PM

**Student Poster Session
and
Welcoming Reception**

Kings Garden

Sponsors:
Genetic Toxicology Association
and
Pfizer Global Research and Development





SUNDAY, OCTOBER 3, 2004

7:00 AM – 6:00 PM

Registration *Ballroom Foyer*

7:00 AM – 8:30 AM

Breakfast Meetings

2005 Program Committee (First Meeting)
Le Bateau Room

Molecular Epidemiology
Special Interest Group
Kings Garden North



Transgenic and *In Vitro* Mutagenesis
Special Interest Group
Kings Garden South





SUNDAY, OCTOBER 3, 2004

8:30 AM – 12:00 PM

Human Variation and Cancer Susceptibility Symposium

Ballroom 2

Chairpersons

Marianne Berwick, University of New Mexico

and

David Hunter, Harvard School of Public Health

8:30 AM – 8:45 AM	Introduction
8:45 AM – 9:15 AM	DNA Repair Capacity and Cancer <i>Marianne Berwick, University of New Mexico</i>
9:15 AM – 9:45 AM	Radical Causes of Human Cancer: Inflammation, Nitric Oxide and p53 <i>Curtis C. Harris, National Cancer Institute</i>
9:45 AM – 10:15 AM	Haplotypes and Cancer Risks <i>David Hunter, Harvard School of Public Health</i>
10:15 AM – 10:30 AM	Break
10:30 AM – 11:00 AM	DNA Sequence Variation and Linkage Disequilibrium: Roles in Cancer Etiology <i>Debbie Nickerson, University of Washington</i>



SUNDAY, OCTOBER 3, 2004

11:00 AM – 11:30 AM Genetic and Environmental
Modifiers of Penetrance in BRCA1 and
BRCA2 Carriers
*Timothy R. Rebbeck, University of
Pennsylvania*

11:30 AM – 12:00 PM The Role of Methylation in Lung Cancer
Etiology
*Steve Belinsky, Lovelace Respiratory
Research Institute*





SUNDAY, OCTOBER 3, 2004

8:30 AM – 12:00 PM

Platform Session 1

Responses to Environmental Agents

Ballroom 3

Chairpersons

Priscilla K. Cooper, Lawrence Berkeley National Laboratory
and

Joann B. Sweasy, Yale University School of Medicine

	Abstract	
8:30 AM	30	LOW-DOSE IRRADIATION PRIOR TO A CHALLENGE DOSE ALTERS THE mRNA TRANSCRIPT PROFILES OF HUMAN LYMPHOBLASTOID CELLS Coleman M, Marchetti F, Nelson D, Peterson LE, Yin E, Tucker JD, Wyrobek AJ
8:45 AM	56	DIFFERENTIAL TRANSCRIPTIONAL RESPONSES OF SACCHAROMYCES CEREVISIAE WITH ALTERED DNA REPAIR CAPACITIES Fry R, Rao A, Samson L
9:00 AM	131	GENOTOXICITY AND CELL CYCLE GENE EXPRESSION CHANGES INDUCED BY NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITORS (NRTIS) Olivero OA, Tejera AM, Das SA, Divi RL, Poirier MC
9:15 AM	75	HUMAN S CHECKPOINTS: MULTIPLE MECHANISMS INHIBIT REPLICON INITIATION AFTER DNA DAMAGE Heffernan T, Unsal-Kacmaz K, Heinloth A, Sancar A, Paules RS, Cordeiro-Stone M, Kaufmann WK
9:30 AM	168	REPAIR OF OXIDATIVE BASE DAMAGE IN UV-SENSITIVE SYNDROME CELLS Spivak G, Hanawalt PC



SUNDAY, OCTOBER 3, 2004

Abstract

9:45 AM 95 **XPA AS A RATE-LIMITING FACTOR FOR UV SENSITIVITY AND NUCLEOTIDE EXCISION REPAIR**
Köberle B, Roginskaya V, Wood RD

10:00 AM 148 **INTERACTION OF TCR AND BER PROTEINS WITH STALLED RNA POLYMERASE II : IMPLICATIONS FOR TRANSCRIPTION-COUPLED REPAIR**
Sarker AH, Tsutakawa SE, Kostek S, Hazra T, Ng C, Nogales E, Cooper PK

10:15 AM Break

10:30 AM 43 **THE HUMAN MISMATCH REPAIR PATHWAY AND *O⁶-METHYLGUANINE* METHYLTRANSFERASE COOPERATE IN THE REPAIR OF *O⁶-METHYLGUANINE* LESIONS**
Drummond J

10:45 AM 58A **GENOMIC INSTABILITY INDUCED BY LOW DOSES OF GAMMA-RADIATION**
Gibbons C, Ritter L, Grosovsky AJ

11:00 AM 125 **HEMATOPOIETIC AGING IN CROSSLINK REPAIR-DEFICIENT *ERCC1*^{-/-} MICE**
Niedernhofer LJ, Prasher J, Lalai A, Touw I, Hoeijmakers JHJ

11:15 AM 114 **DEFECTIVE REPAIR OF ALKYLATION DNA DAMAGE IN MICE**
Meira LB, Pease K, Kerrison F, Dong M, Fry R, Dedon P, Samson LD

11:30 AM 181 **RNAI-MEDIATED POL-BETA SILENCING RESULTS IN INCREASED SENSITIVITY TO TEMOZOLOMIDE**
Trivedi RN, Schamus S, Sobol RW

11:45 AM 136 **FURTHER DEFINING PROTEIN-PROTEIN INTERACTIONS BETWEEN TWO MULTI-FUNCTIONAL HUMAN DNA REPAIR PROTEINS, XERODERMA PIGMENTOSUM-G AND POLY(ADP-RIBOSE) POLYMERASE**
Pluth JM, Zahed Karagaran H, Campeau E, Cooper PK



SUNDAY, OCTOBER 3, 2004

1:00 PM – 4:30 PM

Unusual Mechanisms of Mutation Symposium

Ballroom 2

Chairpersons

Paul Doetsch, Emory University

and

Patricia Foster, Indiana University

1:00 – 1:10 PM Introduction

1:10 – 1:40 PM Stress-Induced Mutagenesis in Bacteria
Patricia Foster, Indiana University

1:40 – 2:10 PM Transcriptional Mutagenesis in Bacteria and
Mammals
Paul Doetsch, Emory Univ. School of Medicine

2:10 – 2:40 PM Mutagenesis via Mistralation
*M. Zafri Humayun, University of Medicine and
Dentistry of New Jersey*

2:40 – 3:10 PM AID-Mediated Somatic Hypermutation
*Matthew Scharff, Albert Einstein College of
Medicine*

3:10 – 3:30 PM Break – Exhibit Hall

3:30 – 4:00 PM Surveillance Mechanisms Discriminating
Between Functional and Mutant Transcripts
*Miles Wilkinson, University of Texas,
MD Anderson Cancer Center*

4:00 – 4:30 PM New Mechanisms for Mitochondrial Mutations
and Human Disease
Michio Hirano, Columbia University



SUNDAY, OCTOBER 3, 2004

1:00 PM – 4:30 PM

Germ and Stem Cell Mutagenesis Symposium

Ballroom 3

Chairpersons

Sheila M. Galloway, Merck Research Laboratories

and

James F. Crow, University of Wisconsin

1:00 – 1:10 PM Introduction

1:10 – 1:40 PM Asymmetric Cell Kinetics and Control of
Grown and Mutation in Stem Cells
*James Sherley, Massachusetts Institute
of Technology*

1:40 – 2:10 PM Mutation Rates and Apoptosis Control in
Cultured Stem Cells
Peter Stambrook, University of Cincinnati

2:10 – 2:40 PM Selection in the Male Germ Line and the
Paternal Age Effect on Human Mutation
Andrew Wilkie, University of Oxford

2:40 – 3:10 PM Genotyping Individual Germ Cells
*Norman Arnheim, University of Southern
California*

3:10 – 3:30 PM Break – Exhibit Hall

3:30 – 4:00 PM Estimation of Human Mutation Rate and
Comparisons with the Mouse Genome
*Alexey Kondrashov, National Center for
Biotechnology Information*

4:00 – 4:30 PM Assessing Human Germ Cell Mutagenesis in
the Post-Genome Era
John J. Mulvihill, University of Oklahoma



SUNDAY, OCTOBER 3, 2004

4:30 PM – 5:30 PM

Keynote Lecture

Ballroom 3

Philip A. Sharp
Massachusetts Institute of Technology

The Surprising Biology of Short RNAs





SUNDAY, OCTOBER 3, 2004

5:30 PM – 7:30 PM

Exhibits and Poster Session 1: Responses to Environmental Agents

Ballroom 1

Odd numbered posters to be attended from 5:30 PM – 6:30 PM

Even numbered posters to be attended from 6:30 PM – 7:30 PM

Poster	Abstract	
1	4	CYCLOOXYGENASE 2 EXPRESSION IN FIBROSARCOMA CELL LINE EXPOSED TO UVC RADIATION Cortés AC, Monroy CM, Ruiz JR, Sicard DS, Groot HG
2	7	FUNCTIONAL EVALUATION OF POLYMORPHIC DNA REPAIR GENES, CHROMOSOME ABERRATIONS AND LUNG CANCER Au WA, Salama SA, Harms C
3	9	CHANGES IN HEPATIC GENE EXPRESSION IN FISHER RATS INDUCED BY DIETARY EXPOSURE TO AROCLOR 1254 Basford TM, Means JC
4	10	BIOMARKERS OF SUSCEPTIBILITY, OXIDATIVE STRESS, AND BIOLOGICAL EFFECT AFTER ACUTE OZONE EXPOSURE IN HUMANS Bastaki M, Chen CL, Manzanillo P, Beckman K, Tager IB, Balmes JR, Holland NT <i>Note: Now being presented in Platform Session 3 on Wednesday, October 6, 2004 at 11:45 AM.</i>
5	18	INDUCTION OF CHROMOSOMAL INSTABILITY AND TUMORS IN B-POL HAPLOINSUFFICIENT MICE Cabelof DC, Ikeno Y, Sobol RW, Tucker JD, Wilson SH, Richardson A, Heydari AR



SUNDAY, OCTOBER 3, 2004

Poster	Abstract
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6	26	MUTATIONS INDUCED BY ARISTOLOCHIC ACID IN THE KIDNEY OF BIG BLUE TRANSGENIC RAT Chen L, Mei N, Chen T
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7	27	EFFECT OF SELENIUM ON THE FATE OF MCF-7 CELLS AFTER DOXORUBICIN-INDUCED DNA DAMAGE Chen Y, Shen S, Waters DJ
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8	44	CYTOKINES INDUCE NO-MEDIATED MTDNA DAMAGE AND APOPTOSIS IN OLIGO-DENDROCYTES: PROTECTIVE ROLE OF TARGETING 8-OXOGUANINE GLYCOSYLASE TO MITOCHONDRIA Druzhyna NM, Wilson GL, LeDoux SP
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9	66	MULTIPLE ORGAN MUTATION FREQUENCIES AT THE CII LOCI IN THE BIG BLUE RAT TREATED WITH ETHYLNITROSOUREA Gunther WC, O'Lone SD, Schuler MJ
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10	70	<i>O</i>⁶-METHYLGUANINE DNA METHYL-TRANSFERASE LEU84PHE AND BREAST CANCER RISK Han J, Tranah GJ, Hankinson SE, Samson LD, Colditz GA, Hunter DJ
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11	73	NOVEL TRANSCRIPTIONAL REPORTERS FOR THE HUMAN <i>GADD45</i> GENE REVEAL THE CRITICAL IMPORTANCE OF DOWNSTREAM ELEMENTS IN MAXIMUM RESPONSE TO GENOTOXIC STRESS Hastwell PW, Walmsley RM
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12	74	A YEAST MODEL OF FRIEDREICH'S ATAXIA: GENOTOXICITY OF MITOCHONDRIAL IRON ACCUMULATION Haugen AC, Karthikeyan G, Collins JB, Tucker CJ, Resnick MA, Van Houten B
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SUNDAY, OCTOBER 3, 2004

Poster	Abstract
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13	86	MODULATION OF CYP1A1 AND CYP1B1 EXPRESSION BY CHLOROPHYLLIN IN NORMAL HUMAN MAMMARY EPITHELIAL CELLS EXPOSED TO BENZO(A)PYRENE John K, Keshava C, Divi RL, Whipkey DL, Poirier MC, Weston A, Nath J
14	87	CHROMIUM PICOLINATE DOES NOT PRODUCE CHROMOSOME DAMAGE IN THE <i>IN VITRO</i> MAMMALIAN CHROMOSOME ABERRATION TEST WITH CHO CELLS Juturu V, Slesinski RS, Gudi R, San R, Komorowski JR
15	91	DETECTION OF P53 AND K-RAS MUTATIONS IN SPUTUM OF NONSMOKING WOMEN EXPOSED TO SMOKY COAL COMBUSTION EMISSIONS IN XUAN WEI COUNTY, CHINA Keohavong P, Lan Q, Gao WM, Zheng KC, Mady H, Melhem M, Mumford JL
16	94	INVESTIGATING THE ROLE OF EXONUCLEASE I IN THE <i>O⁶</i>-METHYLGUANINE-INDUCED APOPTOSIS Klapacz J, Meira LB, Edelmann W, Samson LD
17	98	CHRONIC EXPOSURE TO X-RAYS SUPPRESSES HOMOLOGOUS RECOMBINATION IN MICE Kovalchuk O, Hendricks C, Cassie S, Engelward B
18	100	RELIABLE COMET MEASUREMENTS Kumaravel TS
19	109	REDUCTION IN TAMOXIFEN METABOLIC ACTIVATION AND GENOTOXICITY BY ANTISENSE TECHNOLOGY Mahadevan B, Arora V, Schild LJ, Keshava C, Cate ML, Iversen PL, Poirer MC, Weston A, Pereira C, Baird WM
20	115	A CAENORHABDITIS ELEGANS MODEL OF FRIEDREICH'S ATAXIA SHOWS IRON SENSITIVITY, MITOCHONDRIAL DNA DAMAGE, AND ALTERED GENE EXPRESSION Meyer JN, Boyd WA, Haugen AC, Freedman JH, Van Houten B



SUNDAY, OCTOBER 3, 2004

Poster	Abstract
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21	124	DNA REPAIR PATHWAYS IN THE HEMATOPOIETIC SYSTEM Nattamai KJ, Daria D, Geiger H
22	128	EFFECT OF POLYCYCLIC AROMATIC HYDROCARBON ON HUMAN PROSTATE CARCINOMA CELL LINE (LNCAP) Nwagbara OF, Gragg RD, Reed SF
23	129	METABOLIC ACTIVATION OF 3-NITROBENZ-ANTHRONE BY THE HUMAN RECOMBINANT CYTOCHROME P450 AND ACETYL-TRANSFERASE Oda Y, Watanabe T, Hirayama T
24	134	DETECTION OF mRNA <i>IN SITU</i> USING ROLLING CIRCLE AMPLIFICATION Petibone DM, Thomas RA, Itoh S, Tucker JD
25	136	FURTHER DEFINING PROTEIN-PROTEIN INTERACTIONS BETWEEN TWO MULTI-FUNCTIONAL HUMAN DNA REPAIR PROTEINS, XERODERMA PIGMENTOSUM-G AND POLY(ADP-RIBOSE) POLYMERASE Pluth JM, Zahed Karagaran H, Campeau E, Cooper PK <i>Note: Now being presented in Platform Session 1 on Sunday, October 3, 2004 at 11:45 AM.</i>
26	154	POLQ (POL THETA), A DNA POLYMERASE AND DNA-DEPENDENT ATPASE IN HUMAN CELLS Seki M, Wood RD
27	158	INHIBITION OF PHIP-INDUCED DAMAGE BY CHLOROPHYLLIN IN HUMAN LYMPHOBLASTOID CELLS IN THE ALKALINE SINGLE-CELL GEL ELECTROPHORESIS (COMET) ASSAY Shaughnessy DS, Taylor JA
28	160	INTERACTIONS OF DNA BASE EXCISION REPAIR ENZYMES MUTY HOMOLOG (MYH) WITH PCNA-RELATED CHECKPOINT PROTEINS Shi GL, Cheng CC, Chang DY, Lu AL



SUNDAY, OCTOBER 3, 2004

Poster	Abstract
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29	162	TAT-MEDIATED INTRAMITOCHONDRIAL PROTEIN DELIVERY AS MEANS FOR TARGETING DNA REPAIR ENZYMES TO MITOCHONDRIA Shokolenko IN, Alexeyev MF, LeDoux SP, Wilson GL
30	170	IN VITRO GENOTOXICITY OF RADIO-FREQUENCY (935 MHZ) ALONE OR IN COMBINATION WITH X-RAYS AS EVALUED BY CYTOGENETICS Stronati L, Appolloni M, Fresegna AM, Villani P, Lloyd D, Moquet J, Edwards A
31	174	DROSOPHILA DAMAGED DNA BINDING PROTEIN 1 (D-DDB1) IS AN ESSENTIAL FACTOR FOR DEVELOPMENT Takata KT, Yoshida HY, Yamaguchi MY, Hirose FH, Sakaguchi KS
32	184	INCREASED THROUGHPUT VERSION OF THE IN VITRO MICRONUCLEUS TEST Van Goethem F, De Boeck M, van der Leede BM, De Smedt A, Steemans M, Lampo A, Vanparys P
33	186	ALTERED AZT METABOLISM MAY INDUCE CELLULAR DRUG RESISTANCE IN HUMAN CELLS Vazquez IL, Olivero O, Poirier M
34	189	THE INFLUENCE OF MIXING RATIO ON IN VITRO CYTOTOXICITY OF DRINKING WATER DISINFECTION BY-PRODUCT MIXTURES Wagner ED, Hsu KM, Simmons JE, Plewa MJ
35	193	STUDIES OF THE EARLY STEPS IN MISMATCH REPAIR Wang H, Hoffman PD, Hays JB
36	195	DEVELOPMENT AND EVALUATION OF A FLOW CYTOMETRIC METHOD FOR THE ANALYSIS OF MICRONUCLEI IN RAT BONE MARROW IN VIVO Weiner SK, Fiedler RD, Schuler MJ





SUNDAY, OCTOBER 3, 2004

Poster	Abstract
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37 196 **ARE BUTADIENE DIEPOXIDE DNA ADDUCTS RECOGNIZED BY NUCLEOTIDE EXCISION REPAIR: AN *IN VIVO* TEST USING XPC KNOCKOUT MICE**
Wickliffe JK, Xie J, Galbert LA, Ammenheuser MM, Salazar JJ, Lloyd RS, Ward JB

38 36A **MUTAGENESIS, CYTOTOXICITY AND REPAIR OF 1-METHYLADELINE, 3-ALKYLCYTOSINES, 1-METHYLGUANINE AND 3-ETHYLTHYMINE IN ALKB *ESCHERICHIA COLI***
Delaney JC, Essigmann JM

Note: Now being presented in Platform Session 2 on Monday, October 4, 2004 at 11:45 AM.

39 144A **COMET FORMATION IN RESPONSE TO IRRADIATION OF LYMPHOCYTES WITH NEUTRONS AND GAMMA RAYS**
Rossouw MS, Meehan K, Groenewald WAG, Slabbert JP

40 163A **RESPONSE OF CHO-K1 CELLS TO GAMMA AND NEUTRON RADIATION AS MEASURED BY SINGLE CELL GEL ELECTROPHORESIS (SCGE)**
Smit KA, Slabbert J, Meehan KA

41 34 **REGULATION OF CYTOCHROME P450 ISOFORMS BY HISTAMINE IN RAT LIVER**
Dávila VM, Belmont JA, Albores A, Montero RD

42 35 **METHYLATION AS A POTENTIAL MECHANISM OF ADAPTIVE RESPONSE AFTER EXPOSURE TO X-RADIATION**
Day TK, Hooker AM, Bhat M, Cormack J, Morley AA, Sykes PJ

43 71 **ALTERING DNA BASE EXCISION REPAIR (BER): USE OF NUCLEAR AND MITOCHONDRIAL-TARGETED METHYLPURINE DNA GLYCOSYLASE (MPG) TO SENSITIZE GLIAL CELLS TO ALKYLATING AGENTS**
Harrison JF, Kelley MR, Wilson GL, LeDoux SP



SUNDAY, OCTOBER 3, 2004

Poster	Abstract
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44	76	A POLYMORPHISM IN THE DNA REPAIR GENE MGMT INCREASES HUMAN SENSITIVITY TO THE TOBACCO-SPECIFIC NITROSAMINE NNK Hill CE, Affatato AA, Wolfe KJ, Galbert LA, Wickliffe JK, Abdel-Rahman SZ
45	78	PROTECTIVE EFFECT OF YEAST MAJOR AP ENDONUCLEASE APN1 EXPRESSION IN A MAMMALIAN NEURONAL CELL LINE Ho R, Racheck LI, Xu Y, Kelley MR, LeDoux SP, Wilson GL
46	112	FUNCTIONAL GENOMIC STUDIES OF HUMAN PEROXIDASES McLachlan JJ, Josephy PD
47	127	ANALYSIS OF CHANGES IN GENE EXPRESSION IN RAT LIVER AFTER BENZO(A)PYRENE EXPOSURE ASSESSED BY AFFYMETRIX MICROARRAY AND REAL-TIME PCR N'jai AU, Means JC
48	145	CHRONIC ANTIOXIDANT TREATMENT AND REPRESSION OF FAPY SITES IN GENOMIC DNA OF MAMMALIAN CELLS Rundell MS, Muellner MG, Wagner ED, Plewa MJ
49	161	IL2 mRNA EXPRESSION LEVELS DEPEND UPON PHA CONCENTRATION AS WELL AS EXPOSURE DURATION Shi H, Thomas RA, Petibone DM, Tucker JD



MONDAY, OCTOBER 4, 2004

7:00 AM – 6:00 PM

Registration

Ballroom Foyer

7:00 AM – 8:30 AM

Breakfast Meetings

Exhibitor's Breakfast

Brigade Room

ICEM Organizing Committee

Duquesne Room



Germ Cell/Stem Cell Special Interest Group

Kings Garden North



Risk Assessment Special Interest Group

Sponsor:

Boehringer Ingelheim Pharmaceuticals, Inc.

Kings Garden South

Student and New Investigator Breakfast

Benedum Room





MONDAY, OCTOBER 4, 2004

8:30 AM – 12:00 PM

Recombination and the Maintenance of Genome Stability Symposium

Ballroom 2

Chairpersons

Bevin P. Engelward, Massachusetts Institute of Technology
and
John A. Tainer, The Scripps Research Institute

8:30 AM – 8:45 AM Introduction

8:45 AM – 9:15 AM Structural Aspects of Recombination
Repair

*John A. Tainer, The Scripps Research
Institute*



9:15 AM – 9:45 AM Mouse Models for Measuring *In Vivo*
DNA Recombination
*Bevin P. Engelward, Massachusetts
Institute of Technology*



9:45 AM – 10:15 AM Targeting Recombination Events in Yeast
*Michael A Resnick, National Institute of
Environmental Health Sciences*

10:15 AM – 10:30 AM Break – Exhibit Hall

10:30 AM – 11:00 AM Molecular Mechanisms of Recombination
*Steve C. Kowalczykowski, University of
California, Davis*

11:00 AM – 11:30 AM The Interface Between End Joining and
Homologous Recombination
Jac Nickoloff, University of New Mexico





MONDAY, OCTOBER 4, 2004

8:30 AM – 12:00 PM

Platform Session 2 Mechanisms of Mutation

Ballroom 3

Chairpersons

Ronald D. Snyder, Schering-Plough Research Institute
and
Rosalie K. Elespuru, U.S. FDA

Abstract

8:30 AM

167

**SPONTANEOUS MULTIPLE MUTATIONS
SHOW UNIQUE FEATURES THAT CONSTRAIN
HYPOTHESES ABOUT MUTATIONAL
MECHANISMS AND ULTIMATELY PROVIDE
INSIGHT INTO CARCINOGENESIS**

Sommer SS, Hill KA, Wang J, Farwell KD, Scaringe WA



8:45 AM

101

**HUMAN BREAST TUMORS MANIFEST BOTH
HEREDITARY DEFICIENCY AND SOMATIC
LOSS OF DNA (NUCLEOTIDE EXCISION)
REPAIR**

Latimer JJ, Johnson JM, Kelly CM, Grant SG, Vogel
V, Brufsky AM, Kelley J



9:00 AM

188

**ACCUMULATION OF SIMULATED SOLAR
LIGHT INDUCED MOUSE P53 CODON 27 CGT
TO TGT MUTATION DURING SKIN TUMOR
DEVELOPMENT**

Verkler TL, Delongchamp RR, Warbritton A, Couch
LH, Miller BJ, Howard PC, Parsons BL

9:15 AM

172

**CANCER-ASSOCIATED MUTANTS OF DNA
POLYMERASE BETA INDUCE FOCUS
FORMATION AND INACCURATE DNA
SYNTHESIS**

Sweasy JB, Lang T, Maitra M, DiMaio D, Dalal S,
Starcevic D





MONDAY, OCTOBER 4, 2004

Abstract

9:30 AM **108** **ATPASE ACTIVITY OF MSH2 PROTEINS FROM TRYPANOSOMA CRUZI CORRELATES WITH DIFFERENCES IN MISMATCH REPAIR EFFICIENCY OBSERVED AMONG VARIOUS PARASITE STRAINS**
Machado-Silva A, Augusto-Pinto L, DaRocha WD, Pena SDJ, Teixeira SMR, Machado CR

9:45 AM **89** **NO MAJOR ROLE FOR 8-OXOGUANINE IN UVA-MUTAGENESIS**
Kappes UP, Rünger TM

10:00 AM **192** **NATURALLY OCCURRING H-DNA STRUCTURES ARE MUTAGENIC IN MAMMALIAN CELLS**
Wang G, Vasquez KM

10:15 AM Break – Exhibit Hall

10:30 AM **80** **THE FATE OF CHROMOSOMAL DOUBLE STRAND BREAKS IN HUMAN CELLS**
Honma M, Sakuraba M, Koizumi T, Hayashi M

10:45 AM **96** **MULTIPLE DNA POLYMERASES INVOLVED IN CHEMICALLY-INDUCED FRAMESHIFT MUTAGENESIS IN *ESCHERICHIA COLI* AND *SALMONELLA TYPHIMURIUM***
Kokubo K, Yamada M, Kim SR, Gruz P, Shimizu M, Kanke Y, Nohmi T

11:00 AM **165** **CONTRIBUTION OF N-DIALKYL SUBSTITUTION TO THE GENOTOXICITY AND DNA INTERCALATION ABILITY OF DRUGS AND OTHER CHEMICALS**
Snyder RD, McNulty J, Zairov G, Hendry LB

11:15 AM **22** **A NEW FORM OF RNA EDITING FOUND IN A CHILDHOOD DISEASE CORRECTS A LETHAL STOP CODON**
Chan S, Naviaux R, Copeland W

11:30 AM **204** **TANDEM REPEAT DNA: APPLICATIONS IN GERMLINE MUTATION ANALYSIS**
Yauk CL

11:45 AM **36A** **MUTAGENESIS, CYTOTOXICITY AND REPAIR OF 1-METHYLADELINE, 3-ALKYLCYTOSINES, 1-METHYLGUANINE AND 3-ETHYLTHYMINE IN ALKB *ESCHERICHIA COLI***
Delaney JC, Essigmann JM



MONDAY, OCTOBER 4, 2004

1:00 PM – 4:30 PM

Metals, Mutagenesis and Cancer Symposium

Ballroom 2

Chairpersons

Toby G. Rossman, New York University

and

Kathleen Dixon, University of Cincinnati

1:00 PM – 1:10 PM	Introduction
1:10 PM – 1:40 PM	Arsenic as a Co-Carcinogen <i>Toby G. Rossman, New York University</i>
1:40 PM – 2:10 PM	Chromium – Mechanisms of Mutagenesis <i>Kathleen Dixon, University of Cincinnati</i>
2:10 PM – 2:40 PM	Nickel-Induced Chromatin Damage <i>Kazimierz S. Kasprzak, National Cancer Institute</i>
2:40 PM – 3:10 PM	Iron Overload as a Cause of Cancer <i>Xi Huang, New York University</i>
3:10 PM – 3:30 PM	Break – Exhibit Hall
3:30 PM – 4:00 PM	Biomarkers of Susceptibility and Effect of Arsenic Carcinogenesis in Human Population <i>Habibul Ahsan, Columbia University</i>
4:00 PM – 4:30 PM	Inhibition of Inducible Gene Expression by Chromium <i>Alvaro Puga, University of Cincinnati</i>



MONDAY, OCTOBER 4, 2004

1:00 PM – 4:30 PM

Microbes, Mutation and Malignancy Symposium

Ballroom 3

Chairpersons

David Schauer, Massachusetts Institute of Technology
and

Lorne Hofseth, University of South Carolina

1:00 PM – 1:10 PM	Introduction
1:10 PM – 1:40 PM	Colonic Infection and Cancer Susceptibility <i>David Schauer, Massachusetts Institute of Technology</i>
1:40 PM – 2:10 PM	Induction of a Mutator Phenotype in Inflamed Tissues <i>Lorne Hofseth, University of South Carolina</i>
2:10 PM – 2:40 PM	Carcinogenicity of <i>Helicobacter pylori</i> Infection <i>Pelayo Correa, Louisiana State University</i>
2:40 PM – 3:10 PM	Lessons Learned from Molecular Profiling of Human Hepatocellular Cancer <i>Xin Wei Wang, National Cancer Institute</i>
3:10 PM – 3:30 PM	Break – Exhibit Hall
3:30 PM – 4:00 PM	Introduction of Genetic Instability by Human Papillomavirus Oncoproteins <i>Denise Galloway, Fred Hutchinson Cancer Research Center</i>
4:00 PM – 4:30 PM	The Role of T Cells in Toxicity and Carcinogenicity Induced by Alkylating Agents <i>Barry Gold, Eppley Institute, University of Nebraska</i>



MONDAY, OCTOBER 4, 2004

4:30 PM – 5:30 PM

Keynote Lecture

Ballroom 3

David Botstein, Princeton University

**Genome-Wide Transcriptional Responses
to Environmental Change**





MONDAY, OCTOBER 4, 2004

5:30 PM – 7:30 PM

**Exhibits
and
Poster Session 2:
Mechanisms of Mutation**

Ballroom 1

Odd numbered posters to be attended from 5:30 PM – 6:30 PM
Even numbered posters to be attended from 6:30 PM – 7:30 PM

Poster Abstract

1

3

**EFFECTS OF *MSH3* GENE DELETION ON
TARGETED HOMOLOGOUS
RECOMBINATION IN *ERCC1* WILD-TYPE OR
ERCC1 KNOCK-OUT CELL LINES**

Adair GM, Robison T, Della-Coletta L, Talbert LL,
Nairn RS



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8

**A NOVEL PROTEIN, MGC5306 INTERACTS
WITH A DOMINANT NEGATIVE MUTANT OF
DNA POLYMERASE BETA, A BASE-EXCISION
REPAIR PROTEIN**

Banerjee S, Wang L, Bhattacharyya N, Kim R, Chelsea D

3

16

**FUNCTIONAL STUDIES OF THE HUMAN
MLH1 GENE**

Buermeyer AB, Mohd AB, Nguyen M, Ing B, Palama B

4

17

**ARSENIC COMUTAGENICITY WITH
BENZO(A)PYRENE IN SKIN OF BIG BLUE
TRANSGENIC MICE**

Bukvic A, Andringa A, Genter MB, Dixon K

5

31

**PCR-DGGE BASED DETECTION OF
INCREASED FREQUENCIES OF
MITOCHONDRIAL DNA MUTATIONS IN
INFANTS EXPOSED *IN UTERO* TO AZT-3TC**

Cook DL, Ming JM, Walker VE

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MONDAY, OCTOBER 4, 2004

Poster	Abstract
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6	47	MOLECULAR EPIDEMIOLOGY OF HUMAN LUNG CANCER: ANALYSIS USING THE IARC TP53 DATABASE Elespuru RK, Jenning SM
7	50	CELL VIABILITY AS EVALUATED BY CLONING EFFICIENCY IS THE MAJOR FACTOR AFFECTING <i>IN VIVO</i> HPRT SOMATIC MUTATION FREQUENCIES Evdokimova VN, Babra B, Grant SG
8	52	FACTORS DETERMINING MUTAGENIC POTENCY Felton JS, Knize MG, Malfatti M, Lau E, Colvin M, Hatch F, Lightstone F
9	62	EXPLORING GENE'S FUNCTIONALITY AND EFFECT OF ENVIRONMENTAL CARCINOGENS USING MUTATION DATABASES Gorlov IP, Gorlova OY, Amos CI
10	63	ELEVATED SOMATIC MUTATION FREQUENCIES IN HOMOZOYGOTES AND HETEROZOYGOTES FOR INACTIVATING MUTATIONS IN THE GENES OF THE FA/BRCA PATHWAY OF DNA REPAIR Grant SG, Evdokimova VN, Das R, Rubinstein WS, Latimer JJ, Auerbach AD
11	64	STRUCTURE-FUNCTION DEFECTS OF HUMAN MITOCHONDRIAL DNA POLYMERASE IN AUTOSOMAL DOMINANT PROGRESSIVE EXTERNAL OPHTHALMOPLEGIA Graziewicz MA, Longley MJ, Bienstock RJ, Zeviani M, Copeland WC



MONDAY, OCTOBER 4, 2004

Poster	Abstract
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12	69	SEEKING ALL MUTATORS AND ANTIMUTATORS IN THE YEAST GENOME: PROOF OF CONCEPT Hamilton MD, von Borstel RC
13	77	TISSUE-SPECIFIC TIME COURSES OF SPONTANEOUS MUTATION FREQUENCY AND DEVIATIONS FROM THE CORE MUTATION PATTERN ARE OBSERVED IN MIDDLE TO LATE ADULTHOOD IN BIG BLUE® MICE Hill KA, Farwell KD, Longmate J, Scaringe WA, Wang J, Sommer SS
14	88	FUNCTIONAL POLYMORPHISMS IN WERNER SYNDROME PROTEIN Kamath-Loeb A, Welcsh P, Loeb LA
15	97	MUTATIONAL SPECIFICITY OF N-NITROSONORNICOTINE IN LACZ MICE: MUTATIONS AT A:T BASE PAIRS Kosinska W, Khmelnitsky M, Cote M, Guttenplan JG
16	103	MECHANISMS OF INHIBITION OF X-RAY-INDUCED MUTATIONS IN CHINESE HAMSTER G12 CELLS BY ANTIOXIDANTS Leszczynska J, Lasano S, Klein CB
17	113	RIDDELLIINE-INDUCED MUTATIONS IN THE LIVER <i>ICII</i> GENE OF TRANSGENIC BIG BLUE RATS Mei N, Heflich RH, Chou MW, Fu PP, Chen T
18	117	LIVER <i>CII</i> MUTANT FREQUENCY CORRELATES WITH TUMORIGENICITY IN FEMALE BIG BLUE MICE AND RATS FED MALACHITE GREEN AND LEUCOMALACHITE GREEN Mittelstaedt RA, Mei N, Shaddock JG, Dobrovolsky VN, McGarrity LJ, Greenlees KJ, Heflich RH



MONDAY, OCTOBER 4, 2004

Poster	Abstract
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19	123 EFFECTS OF SOYBEAN PROCESSING BY-PRODUCT ON SPONTANEOUS MUTATION IN MISMATCH-REPAIR DEFICIENT CELLS Mure K, Plewa MJ, Takeshita T, Rossman TG, Klein CB
20	132 THE WERNER SYNDROME PROTEIN AND DNA REPAIR PATHWAYS AT TELOMERIC DNA Opresco PL, Otterlei M, Fan J, Kolvraa S, Wilson DM, Seidman MM, Bohr VA
21	137 CHARACTERISTICS OF INDUCED INSTABILITY AT A MOUSE TANDEM REPEAT LOCUS Polyzos AA, Parfett CL, Healy C, Yu T, Douglas G, Yauk CL
22	140 CONDITIONAL EXPRESSION OF HOGG1 IN MITOCHONDRIA IMPROVES MITOCHONDRIAL REPAIR OF NO-INDUCED DNA DAMAGE AND ENHANCES CELL SURVIVAL Rachek LI, LeDoux SP, Wilson GL
23	142 MISMATCH REPAIR ROLE IN DNA DAMAGE RESPONSES Rajasekaran B, Gao Y
24	143 ARSENIC AND MITOTIC RECOMBINATION IN MICE Robbins S, Fischer J, Stambrook PJ, Stringer S, Al-Zoughool M, Kannamkumarath S, Stringer J
25	150 INCREASED LEVELS OF SINGLE-STRAND DNA BREAKAGE AND ALKALI-LABILE SITES BUT NOT DOUBLE STRAND BREAKS IN SPERM OF OLDER MEN Schmid TE, Baumgartner A, Marchetti F, Young S, Anderson D, Eskenazi B, Wyrobek AJ



MONDAY, OCTOBER 4, 2004

Poster	Abstract
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151

**IN VITRO CHARACTERIZATION OF
NITROSYLATION-MEDIATED MUTAGENIC
ACTIVATION OF SOY ISOFLAVONES**

Schrader TJ, Fine J, Langlois I

27

152

**SPONTANEOUS AND RADIATION-INDUCED
INSTABILITY IN THE HUMAN
LYMPHOBLASTOID CELL LINE TK6**

Schwartz JL, Jordan R, Evans HH, Lenarczyk M,
Liber H

28

155

**BENZO[A]PYRENE (B[A]P) MUTAGENIC
MECHANISMS**

Seo KY, Yin J, Nagalingam A, Lee D, Chandani S,
Loechler EL



29

163

**LACK OF MUTAGENICITY OF CHROMIUM
PICOLINATE IN THE CHO/HGPRT MUTATION
ASSAY: RESULTS FROM STANDARD TESTS
AND A TEST WITH A 48-HOUR EXPOSURE
PERIOD**

Slesinski RS, San R, Clarke J, Juturu V,
Komorowski JR



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171

**CEDU (5-(2-CHLOROETHYL)-2'-DEOXY-
URIDINE), A SALMONELLA POSITIVE, NON-
CLASTOGENIC NUCLEOSIDE ANALOGUE
THAT INDUCES A:T TO G:C TRANSITIONS *IN
VIVO***

Suter W, Staedtler F, Plappert-Helbig U, Glowienke S,
Racine R, Wolf R, Martus HJ

31

175

**POLYAMINES FACILITATE THE FORMATION
OF THE MUTAGENIC DNA ADDUCT 1, *N*²-
PROPANODG FROM ACETALDEHYDE AND
DNA: IMPLICATIONS FOR THE MECHANISM
OF ALCOHOL-RELATED CARCINOGENESIS**

Theruvathu JA, Nath RG, Brooks PJ





MONDAY, OCTOBER 4, 2004

Poster	Abstract
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32	182	AZO DYES ARE MAJOR CONTRIBUTORS TO THE MUTAGENIC ACTIVITY DETECTED IN THE CRISTAIS RIVER WATERS Umbuzeiro G, Freeman HS, Warren SH, de Oliveira DP, Terao Y, Watanabe T, Claxton LD
33	183	COMPARISON OF <i>IN VIVO</i> MUTATION IN GENE <i>A</i> OF <i>IPHIX174</i> TO <i>ILAC1</i> AND <i>ICII</i> OF LAMBDA FROM SPLENIC LYMPHOCYTES IN TRANSGENIC MICE Valentine CR, Rainey HF, Delongchamp RR
34	187	METHYLATION PATTERNS UNDERLYING EPIGENETIC REGULATION OF GENE EXPRESSION IN MISMATCH REPAIR-DEFECTIVE COLON CANCER CELL LINES Veigl ML, Young B, Polinkovsky A, Strickfaden S, Sedwick WD
35	190	EVIDENCE FOR OCCASIONAL "MUTATION SHOWERS" AND THEIR ENHANCEMENT IN P53-DEFICIENT MICE Wang J, Hill KA, Farwell KD, Nasrawi S, Tsai KP, Sommer SS
36	198	THE ROLE OF DNA POLYMERASE ZETA IN GENOME MAINTENANCE AND MOUSE DEVELOPMENT Wittschieben J, Patil V, Skarja S, Gan G, Gollin S, Wood R
37	201	IDENTIFY THE HUMAN HOMOLOGUE OF DNA MISMATCH REPAIR GENES (MSH2 AND MLH1) FROM <i>DICTYOSTELIUM</i> Xu XS, Zhang Y, Wang G
38	206	INVOLVEMENT OF HMGB1 PROTEIN IN HUMAN DNA MISMATCH REPAIR Yuan F, Gu L, Guo S, Wang H, Li GM



MONDAY, OCTOBER 4, 2004

Poster	Abstract	
39	182A	GENETIC POLYMORPHISMS OF THE DNA REPAIR GENE XRCC1, AND RISK OF ACUTE LYMPHOBLASTIC LEUKEMIA IN COLOMBIAN CHILDREN Uribe GI, Torres MM, Groot H
40	20	DIRECTED EVOLUTION OF ALKB USING A PHAGEMID-BASED SYSTEM OF RANDOM MUTAGENESIS <i>IN VIVO</i> Camps M, Johnson BP, Loeb L
41	42	DETERMINANTS OF MITOCHONDRIAL GENETIC STABILITY IN <i>SACCHAROMYCES CEREVISIAE</i> Doudican NA, Shadel GS, Doetsch PW
42	46	DNA MISMATCH REPAIR AT A HUMAN ONCOGENIC HOT SPOT OF MUTATION Edelbrock MA, Schroering AG, Fernstrom MJ, He H, Bathala S, Williams KJ
43	68	STRUCTURE-FUNCTION ANALYSIS OF DNA POLYMERASE BETA AND O⁶-METHYLGUANINE-MODIFIED NUCLEOTIDE DISCRIMINATION Hamid S, Eckert KA
44	104	CHARACTERIZATION OF THE ROLE OF THE LOOP REGION OF DNA POLYMERASE BETA IN POLYMERIZATION FIDELITY Lin GC, Sweasy JB
45	156	MUTAGENIC AND CYTOTOXIC POTENTIAL OF N3-METHYLADELINE: EFFECTS OF N3-METHYLADELINE ON POLYMERASE PROCESSIVITY AND FIDELITY Settles S, Monti P, Iannone R, Varadarajan S, Fronza G, Gold B
46	164	EFFECTS OF PHIP, A FOOD-BORNE CARCINOGEN, ON MUTAGENESIS AND TUMORIGENESIS IN MLH1-DEFICIENT MICE Smith-Roe SL, Crain SS, Palama BK, Buermeyer AB



TUESDAY, OCTOBER 5, 2004

7:00 AM – 12:30 PM

Registration *Ballroom Foyer*

7:00 AM – 8:30 AM

Breakfast Meetings

EMS Executive Board
Duquesne Room

DNA Repair Special Interest Group
Kings Garden North



Hollaender Committee
Le Bateau Room

Membership and Professional Development Committee
Kings Garden South

Public Relations and Communications Committee
Brigade Room





TUESDAY, OCTOBER 5, 2004

8:30 AM – 9:30 AM

Keynote Lecture

Ballroom 3

Elizabeth Blackburn
University of California, San Francisco

**Telomeres and Genomic Stability:
When Ends Don't Meet**





TUESDAY, OCTOBER 5, 2004

9:30 AM – 12:30 PM

**Exhibits
and
Poster Session 3:
Exposure Detection and Toxicity**

Ballroom 1

Odd numbered posters to be attended from 9:30 AM – 11:00 AM

Even numbered posters to be attended from 11:00 AM – 12:30 PM

Poster Abstract

1	5	INTERPRETATION OF INCREASES IN MICRONUCLEI IN CHO CELLS IN THE PRESENCE OF APOPTOSIS Armstrong MJ, Cunningham CL, Fleckenstein CM, Greenwood SK, Hill RB, McKnight CG, Galloway SM
2	11	DAMAGE-RECOVERY HOT SPOTS IDENTIFIED BY GENOMIC PHENOTYPING AND LOCALIZATION MAPPING Begley TJ, Rosenbach AS, Ideker T, Samson LD
3	21	INDUCED CYTOTOXICITY AND MUTAGENICITY OF HUMAN LYMPHO-BLASTOID CELLS (TK6) EXPOSED TO STAVUDINE, LAMIVUDINE AND STAVUDINE-LAMIVUDINE Carter MM, Cook Jr DL, Torres S, Walker DM, Walker VE
4	23	NITROREDUCTASE AND N-ACETYL-TRANSFERASE ACTIVITIES IN THE MUTATMMOUSE Chen G, White PA, Gingerich J, Soper L, Douglas GR
5	24	THE MUTAGENIC HAZARDS OF AQUATIC SEDIMENTS: A REVIEW Chen GC, White PAW



TUESDAY, OCTOBER 5, 2004

Poster	Abstract
6	28
7	33
8	36
9	37
10	38
11	40
12	49
13	51

ANALYSIS OF RADIATION-INDUCED MICRONUCLEI INVOLVING CHROMOSOME 1 AND 4 BY FISH TECHNIQUE
Chung HW, Kim TY, Cho YH, Kim SY, Ha SW

DEVELOPMENT OF A MICRONUCLEUS ASSAY IN THE EPIDERMTM HUMAN 3D SKIN MODEL
Curren RD, Mun GC, Gibson DP, Aardema MJ

FLOW CYTOMETRIC ANALYSIS OF MICRONUCLEATED RETICULOCYTES IN MICE AFTER MULTIPLE BLOOD SAMPLING
De Boeck M, van der Leede BM, De Smedt A, Steemans M, Van Goethem F, Lampo A, Vanparys P

HUMAN BLOOD MICRONUCLEUS SCORING: APPLICATIONS IN SICKLE CELL DISEASE
Dertinger S, Ware R, Howard T, Torous D, Avlasevich S, Tometsko C

POST-BIRTH MITOCHONDRIAL TOXICITY OF *IN UTERO* NUCLEOSIDE REVERSE TRANSCRIPTASE INHIBITOR (NRTI) EXPOSURES IN A PRIMATE MODEL
Divi RL, Leonard SL, Nagashima K, Harbaugh SW, Harbaugh JW, St. Claire MC, Poirier MC

FREQUENCY OF MICRONUCLEATED ERYTHROID CELLS IN AZT-TREATED TK-PROFICIENT AND TK-DEFICIENT MICE
Dobrovolsky VN, Heflich RH, McGarrity LJ, VonTungeln LS, Beland FA

AN *IN VIVO-IN VITRO* STUDY PROTOCOL FOR THE CONDUCT OF THE RAT PERIPHERAL BLOOD LYMPHOCYTE (RPBL) CHROMOSOME ABERRATIONS (CA) ASSAY
Erexson GL, Farabaugh CS, Yung KM, Stojhovic GP

FACTORS AFFECTING SPONTANEOUS MUTANT FREQUENCY IN THE MICROTITRE MOUSE LYMPHOMA CELL THYMIDINE KINASE LOCUS ASSAY (MLA)
Fellows M, Clements J, Shaw K, Thompson A, O'Donovan M



TUESDAY, OCTOBER 5, 2004

Poster	Abstract
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14	55	OPTIMIZATION AND APPLICATION OF THE <i>IN VITRO</i> MICRONUCLEUS ASSAY FOR THE EVALUATION OF CIGARETTE SMOKE CONDENSATE Fowler KW, Morgan WT, Doolittle DJ, Bombick BR
15	57	AN IMPROVED, SEMI-AUTOMATED METHOD FOR MEASURING <i>HPRT/HPRT</i> GENE MUTATIONS IN MOUSE AND HUMAN LYMPHOCYTES Galbert LA, Guerin AT, Carmical JR, Herring SM, Abdel-Rahman SZ, Ward JB, Wickliffe JK
16	58	CYTOCHROME P4501A1 (CYP1A1) INDUCTION IS SUPPRESSED BY COAL DUST EXPOSURE IN THE OVINE LUNG Ghanem M, Hubbs AF, Kashon M, Weissman D, Porter D, Vallyathan V, Batelli LA, Nath J
17	59	TESTING THE SPECIFICITY OF THE <i>IN VIVO</i> RODENT SKIN MICRONUCLEUS ASSAY AS DEVELOPED BY NISHIKAWA ET AL., FOR CHEMICALS NEGATIVE IN DERMAL CARCINOGENESIS ASSAYS Gibson DP, Krsmanovic LS, Aardema MJ
18	67	GENOTOXICITY OF AIR PARTICULATE MATTER FROM MEXICO CITY, MEXICO, CONTAINING HIGH LEVELS OF METALS Gutiérrez ME, Roubicek DA, Sordo M, Cebrián ME, DeVizcaya A, Ostrosky P
19	81	DEVELOPMENT OF MICROWELL SYRIAN HAMSTER EMBRYO (SHE) CELL MICRONUCLEUS (MN) ASSAY Hu T, Gibson DP, Aardema MJ
20	83	MULTI-LABORATORY VALIDATION OF A FLOW CYTOMETRIC MICRONUCLEUS ASSAY: METHOTREXATE RESULTS: ADDITIONAL RAT PERIPHERAL BLOOD ANALYSIS IN STANDARD AND NON-STANDARD VEHICLES Hynes GM, Lynch AM, Torous DK



TUESDAY, OCTOBER 5, 2004

Poster	Abstract
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21	84	AN AUTOMATED APPROACH TO COMET ASSAY ANALYSIS Jackman SM
22	93	EVALUATION OF THE PERFORMANCE OF A SMALL BATTERY OF <i>IN VITRO</i> TESTS IN DETECTING RODENT AND HUMAN CARCINOGENS Kirkland DJ, Aardema MJ, Henderson L, Müller L
23	105	EVALUATION OF CELLOMICS MICRONUCLEUS BIOAPPLICATION - AN AUTOMATED SCORING SYSTEM Lu S, Khoh-Reiter S, Lee M, Jessen B, Stevens G
24	107	INTEGRATION OF CHROMOSOMAL DAMAGE ASSESSMENT WITH ROUTINE TOXICITY TESTING USING A FLOW CYTOMETRIC ASSAY FOR MICRONUCLEATED RETICULOCYTES MacGregor JT, Bishop ME, Dertinger S, McNamee J, Harper S, Hotchkiss C, Hayashi M
25	111	ACB-PCR MEASUREMENT OF RARE K-RAS CODON 12 MUTATIONS IN LIVER OF N-HYDROXY-2-ACETYLAMINOFLUORENE-TREATED BIG BLUE RATS® McKinzie PB, Chen T, Heflich RH, Parsons BL
26	126	MICROARRAY DATA INFORMATION DEPENDS ON VALIDATION CRITERIA: HOW LOW OR HIGH STRINGENCY METHODS LEADS TO DIFFERENCES IN PROBE LEVEL INFORMATION N'jai AU, Means JC
27	130	CLASTOGENICITY AND MUTATIONAL SPECIFICITY OF AN N-HYDROXY METABOLITE OF AMINOPHENYL-NORHARMAN Ohe T, Mizuno T, Totsuka Y, Takamura T, Oda Y, Wakabayashi K



TUESDAY, OCTOBER 5, 2004

Poster	Abstract	
28	133	VALIDATION OF A MODIFICATION OF THE SYRIAN HAMSTER EMBRYO (SHE) CELL TRANSFORMATION ASSAY AT PH 6.7 USING DIFFERENT CELL ISOLATES AND THE RODENT CARCINOGEN 2,4-DIAMINOTOLUENE Pant K, Reece JD, Gibson DP, Aardema M, San R
29	135	THE GENOTOXICITY OF THE DRINKING WATER DISINFECTION BY-PRODUCT IODOACETIC ACID IS REDUCED BY MODULATORS OF OXIDATIVE STRESS Plewa MJ, Cemeli E, Anderson D, Wagner ED
30	138	SEMI-QUANTITATION OF POLYCYCLIC AROMATIC HYDROCARBON (PAH)-DNA ADDUCTS IN HUMAN CERVIX BY IMMUNOHISTOCHEMISTRY AND THE AUTOMATED CELLULAR IMAGING SYSTEM (ACIS) Pratt MM, Castle PE, Schiffman M, Glass AG, Scott DR, Rush BB, Poirier MC
31	146	RADIATION-INDUCED CHROMOSOMAL DAMAGE IN TRANSGENIC MICE WITH VARIOUS <i>P53</i> GENOTYPES Rupa DS, Rausch L, Lin S, Bakke J, Orduna J, Chang P
32	147	USING THE TREATED ACID MINE WATER FOR THE RAINBOW TROUT PRODUCTION AT DOGWOOD LAKE IN WEST VIRGINIA Salem M, Semmens KJ, Tierny A, Viadero R, Nath J
33	176	SIMPLE TARGET DETECTION FROM mRNA BY ROLLING CIRCLE AMPLIFICATION (RCA) IN SOLUTION Thomas RA, Itoh S, Petibone DM, Shi H, Tucker JD
34	179	FLOW CYTOMETRIC ANALYSIS OF MICRONUCLEI IN RODENT AND HUMAN BLOOD USING A NEWLY DEVELOPED THREE-COLOR LABELING METHOD Torous DK, Dertinger SD, MacGregor JT, Bishop ME, Ponten I, Chen Y, Tometsko CR



TUESDAY, OCTOBER 5, 2004

Poster	Abstract
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35	194	MUTATIONAL AND TRANSCRIPTIONAL RESPONSE OF SALMONELLA TO MX: CORRELATION OF MUTATIONAL DOSE RESPONSE TO CHANGES IN GENE EXPRESSION Ward WO, Porwollik S, Warren SH, McClelland M, DeMarini DM
36	197	ZIDOVUDINE IS THE MUTAGENIC COMPONENT OF COMBINATION ANTIRETROVIRAL DRUG THERAPY ADMINISTERED TO CD-1 MOUSE PUPS IN A TREATMENT REGIMEN SIMILAR TO THAT USED IN HUMANS FOR PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV Witt KL, Tice RR, Wolfe GW, Bishop JB
37	199	AN ASSESSMENT OF CUMENE HYDROPEROXIDE IN THE <i>IN VIVO</i> COMET ASSAY IN MOUSE SKIN Wolfreys AM, Clay P, Elliott B, Jones E
38	202	THE SCGE STUDY OF DNA DAMAGE ON GERM CELL OF RAT INDUCED BY NITROAROMATIC COMPOUNDS Xu J
39	203	COMPREHENSIVE EVALUATION OF SIX COMMERCIALLY AVAILABLE MICROARRAYS Yauk CL, Berndt ML, Williams A, Douglas GR
40	205	ANTIMUTAGENIC ACTIVITY OF SPEARMINT (<i>MENTHA SPICATA L.</i>) Yu TW, Dashwood RH, Xu M
41	2	ROLE OF DNA REPAIR PROTEINS IN THE FORMATION OF ANAPHASE BRIDGES Acilan C, Gollin SM, Saunders WS
42	19	DEVELOPMENT OF A RAPID SCREEN FOR ANEUGENIC AND CLASTOGENIC AGENTS USING P53 AS A MARKER OF GENOTOXICITY Camacho H, Roy SK, Eastmond DA



TUESDAY, OCTOBER 5, 2004

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43	25	CYTOGENETIC AND OXIDATIVE DAMAGE FROM ACUTE OZONE EXPOSURE Chen CL, Arjomandi M, Balmes JR, Tager IB, Shigenaga MK, Kadze M, Holland NT
44	53	ARSENIC INDUCED MUTATION DETECTED <i>IN SITU</i> IN MOUSE SKIN AND LUNG Fischer JM, Larson JS, Robbins S, Stinger SL, Stambrook PJ, Stringer JR
45	106	CIGARETTE SMOKE INDUCES ANAPHASE BRIDGES AND CHROMOSOMAL INSTABILITY IN NORMAL CELLS Luo LZ, Werner KM, Gollin SM, Saunders WS
46	119	<i>IN VITRO</i> EVALUATION OF GLYPHOSATE-INDUCED DNA DAMAGE IN FIBROSARCOMA CELLS HT1080 AND CHINESE HAMSTER OVARY (CHO) CELLS Monroy CM, Cortes AC, Sicard DM, Plewa MJ, Groot H
47	120	DEVELOPMENT OF FTC ANTIOXIDANT MICROPLATE ASSAY AND THE ISOLATION OF ANTIOXIDANTS FROM AGRICULTURAL BY-PRODUCTS Muellner MG, Rundell MS, Vaughn SF, Berhow MA, Wagner ED, Plewa MJ
48	122	BIOMARKERS OF OXIDATIVE STRESS ARE ELEVATED AMONG AGRICULTURAL WORKERS Muniz J, Kisby GE, Lasarev M, Koshy M, Kow YW, Li X, McCauley L
49	141	ANTHRACENE TRANSFORMATION BY MARINE HALOPHILIC MICROORGANISMS Raghavan TM



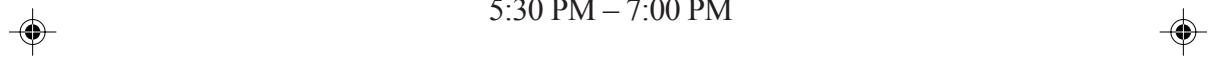
TUESDAY, OCTOBER 5, 2004

12:30 PM – 5:30 PM

Free afternoon

Fall Foliage Cruise and Andy Warhol Museum Tour

Ticket Required
Meet in Hotel Lobby
12:45 PM



5:30 PM – 7:00 PM

**Business Meeting
and
EMS Student Awards**

Ballroom 3

7:00 PM – 10:00 PM

Banquet and EMS Awards

Ballroom 1





WEDNESDAY, OCTOBER 6, 2004

7:00 AM – 1:00 PM

Registration *Ballroom Foyer*

7:00 – 8:30 AM

Breakfast Meetings

2005 Program Committee (Second Meeting)
Brigade Room

 Education and Student Affairs Committee
Liberty Room 

Genomics Special Interest Group
Duquesne Room

New Technologies Special Interest Group
Benedum Room





WEDNESDAY, OCTOBER 6, 2004

8:30 AM – 12:00 PM

Multiple Roles for DNA Mismatch Repair Symposium

Ballroom 2

Chairpersons

Thomas A. Kunkel

National Institute of Environmental Health Sciences

and

Margaret Hsieh

National Institute of Diabetes and Digestive and Kidney Diseases

8:30 AM – 8:45 AM	Introduction
8:45 AM – 9:15 AM	Mismatch Repair Role in DNA Damage Responses <i>Baskaran Rajasekaran, University of Pittsburgh</i>
9:15 AM – 9:45 AM	Mismatch Repair and Mutagenesis Due to Oxidative Stress <i>Margherita Bignami, Istituto Superiore di Sanita</i>
9:45 AM – 10:15 AM	Function of Mismatch Repair Proteins in Meiosis <i>Rhonda H. Borts, University of Leicester</i>
10:15 AM – 10:30 AM	Break
10:30 AM – 11:00 AM	Mouse Models of Mismatch Repair <i>Winfried Edelmann, Albert Einstein College of Medicine</i>
11:00 AM – 11:30 AM	Studies of the Early Steps in Mismatch Repair <i>John B. Hayes, Oregon State University</i>
11:30 AM – 12:00 PM	The Structural Biology of Mismatch Repair <i>Wei Yang, National Institute of Diabetes and Digestive and Kidney Diseases</i>



WEDNESDAY, OCTOBER 6, 2004

8:30 AM – 12:00 PM

Platform Session 3 Exposure, Detection and Toxicity

Ballroom 3

Chairpersons

David DeMarini, U.S. EPA

and

Carol L. Yauk, Health Canada

		Abstract	
8:30 AM	200	TRANSCRIPTOME PROFILING OF DOSE RESPONSE IN HUMAN LYMPHOBLASTOID CELLS EXPOSED TO IONIZING RADIATION Wyrobek AJ, Coleman MA, Krishnan K, Marchetti F, Nelson D, Tucker JD, Futado M, Hill F, Manohar C	
8:45 AM	92	TRANSCRIPTIONAL RESPONSE TO DIESEL PARTICULATE EXTRACT (SRM1975) AND MODULATION BY CHLOROPHYLLIN IN NORMAL HUMAN MAMMARY EPITHELIAL CELLS USING DNA MICROARRAYS Keshava C, Whipkey DL, Weston A	
9:00 AM	153	DOSE RESPONSE FOR GENE EXPRESSION IN THE LIVERS OF BIG BLUE® RATS TREATED WITH A GENOTOXIC AND NON-GENOTOXIC CARCINOGEN Seidel SD, Kan HL, Stott WT, Sparrow BR, Gollapudi BB	
9:15 AM	121	INTRA- AND INTER-LABORATORY VARIABILITY DOES NOT PRECLUDE IDENTIFICATION OF HYDROXYUREA MOLECULAR SIGNATURE Muller A, Boitier E, Hu T, Carr G, Lefevre AC, Aardema M, Thybaud V	

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WEDNESDAY, OCTOBER 6, 2004

Abstract

9:30 AM 1 **PROTEIN ARRAY METHOD FOR ASSESSING *IN VITRO* BIOMATERIAL-INDUCED CYTOKINE EXPRESSION**
Abu-Shakra A, Li Y, Schutte R, Reichert WM

9:45 AM 169 **CYTOGENETIC ANALYSIS USING FLUORESCENCE *IN SITU* HYBRIDIZATION (FISH) TO EVALUATE THE IMPACT OF ENVIRONMENTAL EXPOSURE TO PAHS**
Sram RJ, Beskid O, Binkova B, Chvatalova I, Rossner P, Smerhovsky Z

10:00 AM 173 **NON-LINEAR DOSE RESPONSE TO LOW DOSES OF X-RADIATION**
Sykes PJ, Cormack J, Domel RU, Burch WM, Swinburne SJ, Morley AA, Hooker AM

10:15 AM Break

10:30 AM 48 **PHIP-INDUCED CHROMOSOMAL INSTABILITY: A PROSTATE CANCER CASE-CONTROL STUDY**
El-Zein R, Etzel C, Lopez M, Gu Y, Spitz M, Strom S

10:45 AM 180 **RELATIONSHIPS BETWEEN EXPOSURE CONCENTRATION, EXPOSURE DURATION, LEVELS OF DNA INCORPORATION OF DRUGS AND MUTAGENIC EFFECTS IN HUMAN LYMPHOBLASTOID TK6 CELLS EXPOSED *IN VITRO* TO AZT, 3TC, AND AZT-3TC**
Torres SM, Walker VE, Olivero OA, Carter M, Cook D, Poirier M, Walker DM

11:00 AM 110 **EVALUATION OF MUTAGENICITY IN BIG BLUE (BB) MICE ADMINISTERED ACRYLAMIDE (AA) AND GLYCIDAMIDE (GA) IN DRINKING WATER FOR 4 WEEKS**
Manjanatha MG, Aidoo A, Shelton SD, Bishop ME, McDaniel LP, Doerge DR



WEDNESDAY, OCTOBER 6, 2004

Abstract

11:15 AM **178** **CYTOGENETIC BIOMONITORING: MICRONUCLEI FORMATION AND CHANGES IN ANTIOXIDANTS IN FARM WORKERS OCCUPATIONALLY EXPOSED TO LOW LEVELS OF PESTICIDES IN KENTUCKY**
Tope AM, Bebe FN, Panemangalore M

11:30 AM **99** **RADIATION-INDUCED GENOMIC DNA METHYLATION CHANGES – THE BIOLOGICAL SIGNIFICANCE AND POSSIBLE MECHANISMS**
Kovalchuk OV, Raiche JN, Slovack MK, Pogribny IP

11:45 AM **10** **BIOMARKERS OF SUSCEPTIBILITY, OXIDATIVE STRESS, AND BIOLOGICAL EFFECT AFTER ACUTE OZONE EXPOSURE IN HUMANS**
Bastaki M, Chen CL, Manzanillo P, Beckman K, Tager IB, Balmes JR, Holland NT





WEDNESDAY, OCTOBER 6, 2004

1:00 PM – 4:30 PM

DNA Helicases, Mutation, Cancer and Aging Symposium

Ballroom 2

Chairpersons

Raymond J. Monnat, University of Washington
and
Lawrence A. Loeb, University of Washington

1:00 PM – 1:10 PM

Introduction

1:10 PM – 1:40 PM

Human Diseases with Early Aging Are
Defective in DNA Repair
Vilhelm Bohr, National Institute on Aging

1:40 PM – 2:10 PM

Interactions of Bypass Polymerases, p53 and
Recombination in Maintaining Genome
Integrity
*James Cleaver, University of California,
San Francisco*



2:10 PM – 2:40 PM

Mutagenesis, Genetic Instability and Clonal
Evolution in Human Cell Lineages
Barry A. Finette, University of Vermont

2:40 PM – 3:10 PM

Werner Syndrome, Polymorphisms and
Cancer
*Lawrence A. Loeb, University of
Washington*

3:10 PM – 3:30 PM

Break

3:30 PM – 4:00 PM

Werner Syndrome Protein Function and
Disease Pathogenesis
*Raymond J. Monnat, University of
Washington*

4:00 PM – 4:30 PM

Loss of Genomic Integrity in Early
Carcinogenesis
*Thea Tsly, University of California, San
Francisco*



WEDNESDAY, OCTOBER 6, 2004

1:00 PM – 4:30 PM

Mitochondria at the Crossroads of Life and Death Decisions Symposium

Ballroom 3

Chairpersons

Susan P. LeDoux

University of Alabama, Mobile
and

Bennett Van Houten

National Institute of Environmental Health Sciences

1:00 PM – 1:10 PM Introduction

1:10 PM – 1:40 PM Targeting DNA Repair Enzymes to the
Mitochondria

*Susan P. LeDoux, University of Alabama,
Mobile*

1:40 PM – 2:10 PM Consequences of Iron-Mediated
Mitochondrial DNA Damage
*Bennett Van Houten, National Institute of
Environmental Health Sciences*

2:10 PM – 2:40 PM Molecular Genetics of Human
Mitochondrial Respiratory Chain Defects
Eric A. Shoubridge, McGill University

2:40 PM – 3:10 PM Mitochondrial Uptake of AP-Endonuclease
A Base Excision Repair Enzyme
*Sankar Mitra, University of Texas,
Galveston*

3:10 PM – 3:30 PM Break



WEDNESDAY, OCTOBER 6, 2004

3:30 PM – 4:00 PM Consequences of Mutations in DNA
Polymerase Gamma

*William C. Copeland, National Institute
of Environmental Health Sciences*

4:00 PM – 4:30 PM p53 Mediated Apoptosis Through Direct
Interactions with the Mitochondria
*Ute Moll, State University of New York at
Stony Brook*





WEDNESDAY, OCTOBER 6, 2004

4:30 PM – 5:30 PM

Keynote Lecture

Ballroom 3

Douglas Lauffenburger
Massachusetts Institute of Technology

Systems Biology Approach to Cell Phenotypic Decision Processes

5:30 PM – 6:30 PM

EMS Council Meeting

Duquesne Room

EXHIBIT HOURS

Sunday	October 3, 2004	5:30 PM – 7:30 PM
Monday	October 4, 2004	5:30 PM – 7:30 PM
Tuesday	October 5, 2004	9:30 AM – 12:30 PM





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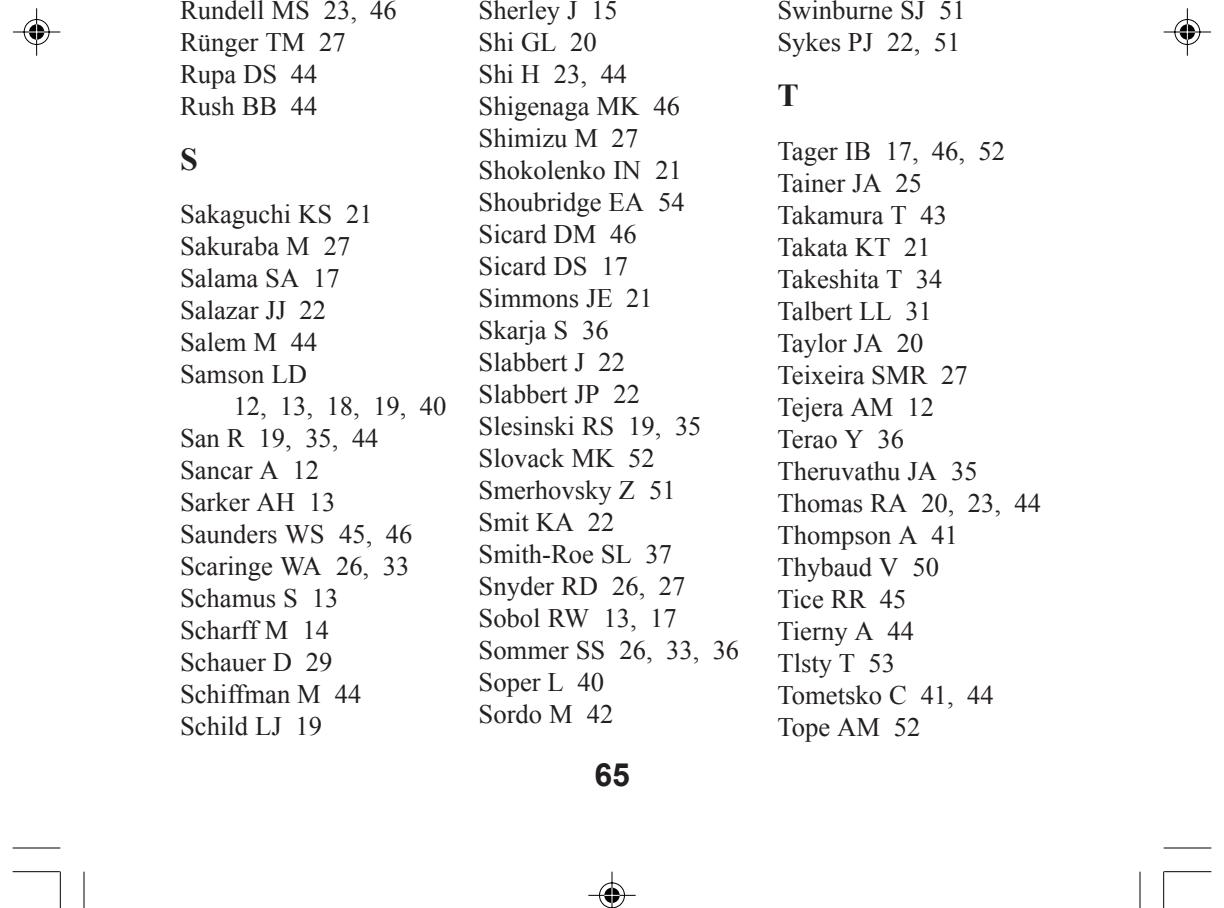
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Meeting Room Locations

Our meeting and function rooms are located on different levels of the hotel. The following list shows the location of the rooms.

Lobby
Benedum Room
Duquesne Room
Liberty Room

Mezzanine
Ballrooms 1, 2, 3
Ballroom Foyer
Brigade Room
Kings Garden North
Kings Garden South
Le Bateau Room



ON-SITE REGISTRATION FEES

EMS Meeting	Registration	Tour &Registration
Member	\$475	\$540
Non-Member	\$625	\$690
Post-Doctoral	\$325	\$390
Graduate or Undergraduate Student	\$225	\$290
Guest		\$225
Saturday Forum Only	\$175	



