52nd Annual Meeting
Virtual Meeting, Real Science
September 22-25, 2021

Carole Yauk, PhD
President

Jeff Bemis, PhD
EMGS Program Chair

Isabelle Miousse, PhD
New Investigator Co-Chair

KEYNOTE SPEAKERS

Ned. E Sharpless, MD
Director, National Cancer Institute

Sunney Xie, PhD
Dean of Sciences, Peking University

Cheryl L. Walker, PhD
Director, Center for Precision, Environmental Health

Epigenomics
In Vivo Mutagenesis
Applied Genetic Toxicology
Genomics and Data Sciences
Germ Cell and Heritable Effects
DNA Repair and Mutagenic Mechanisms
Genotoxicity Risk Assessment and Public Health
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52nd Annual Meeting

Environmental Mutagenesis and Genomics Society:

Virtual Annual Meeting

September 22 - 25, 2021

Carole Yauk, PhD
EMGS President

Jeff Bemis, PhD
EMGS Program Chair

Isabelle Miousse, PhD
New Investigator Co-chair

Environmental Mutagenesis and Genomics Society
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EMGS Website: www.emgs-us.org

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The Environmental Mutagenesis and Genomics 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. www.emgs-us.org/page/emgsmembership

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EMGS Annual Event Site

On the Annual Meeting Event website, you can view the abstracts for all sessions, build your agenda, see a list of attendees, and more. To access the event site, use the following link:

EMGS Annual Meeting Site: https://pheedloop.com/EMGS2021/site/home/
EMGS Virtual Meeting Site: https://pheedloop.com/EMGS2021/virtual/?page=lobby

Accessing Live Virtual Sessions: Presenters and registered attendees will receive an email with an invitation to the EMGS 2021 Virtual Annual Meeting. This will enable all users to access our Virtual Annual Meeting page that will have links to all the meetings as well as showcase our poster presentations. (See the planned Program for a thorough overview of the meeting.)

For other questions about the meeting, please contact the EMGS business office at emgshq@emgs-us.org or call (904) 289-3410

The Program for the 2021 Meeting may be updated throughout the meeting. To see the Program, go to https://www.emgs-us.org/p/cm/ld/fid=596
How To Access EMGS 2021

The Environmental Mutagenesis and Genomics Society’s Virtual Meeting begins on September 22, 2021. Every presenter and registrant should be familiar with 3 KEY SITES for attending the meeting. Read carefully and refer to this page as you prepare for and attend the 2021 EMGS Virtual Annual Meeting.

1. **EMGS Website** - [https://www.emgs-us.org/p/cm/ld/fid=596](https://www.emgs-us.org/p/cm/ld/fid=596)
   This is the website for an overview of the EMGS 2021 and its offerings including the official program.

   Registered attendees can browse scheduled speakers, programs, and sessions and review information about each presenter and read their abstracts. You can explore what is on the schedule and create a personalized agenda. **This site requires a login**, so refer to your confirmation from Pheedloop that will contain your initial password to login. Then you choose your own password.

   This is where you will access all of the live sessions scheduled for EMGS 2021. The Virtual Meeting Site – is open and accessible to registrants to the event. This is the website you can search sessions by symposium, platform, speaker, etc. and view all the sessions live and prerecorded.

   You can click “Add to Calendar” to add this event to a personalized agenda to keep you on track through the 2021 EMGS Annual Event.

   **Please take the opportunity to log on and explore the Virtual Annual Meeting Site before** the event begins. Once you log in using your credentials from your confirmation email, you will be able to create your own password to log in and out of the event. You can then create a personalized agenda for each day. Simply click on the session you would like to attend and click add to calendar to add it to your agenda. When it is time for your event, click on that session and speaker will be broadcasting live! There are interactive chat boxes to network, ask questions, and say hello to the speaker and fellow attendees.

   For questions about the meeting, please contact the EMGS business office at emgshq-us.org or call (904) 289-3410
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Sumira Phatak, PhD, SNI Co-Chair

Genomics and Data Sciences
Thomas E. Wilson, MD, PhD, Chair
Christopher Faulk, PhD, Co-Chair
Tess C. Leuthner, New Investigator Co-Chair

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Welcome to the 2021 Annual Meeting

Welcome to the 52nd annual meeting of the Environmental Mutagenesis and Genomics Society. We hope you enjoy the meeting, which is designed to provide access to cutting-edge science as well as opportunities for socializing with friends and colleagues.

Your Program Committee has assembled a large cast of Keynote Speakers, Symposia, Platform Presentations and Poster Sessions to inform, challenge and educate.

To be successful in the future, EMGS needs your participation. Please sign up for a committee and attend Special Interest Group (SIG) meetings.

Jeff Bemis, PhD, EMGS 2021 Program Chair

Carole Yauk, PhD, EMGS 2021 President

General Information

The EMGS Annual Meeting uniquely brings together leading scientists from academia, industry, and government to discuss cutting-edge research aimed at understanding and mitigating environmental threats to the genome and to the epigenome. Environmental exposures pose a complex and constantly evolving threat to genomic integrity, putting ourselves and future generations at increased risk of disease.

Our dynamic and interactive meetings are designed to promote the Society’s mission to understand and mitigate the impacts of environmental exposures on the genome to protect human health through diverse and inclusive leadership in research, professional development, and collaboration.

For decades, the EMGS Annual Meeting has been creating opportunities for new investigators to join a welcoming community of scientists working in research institutions, regulatory agencies, and industry, all with a shared commitment toward public health. The Society puts a major focus on supporting the next generation of scientists through both formal and informal activities throughout the meeting.

The EMGS Welcomes You

The EMGS recognizes the scientific achievements of our diverse membership and fosters career development and advancement for everyone. We are committed to supporting all members of the EMGS community, irrespective of age, culture, ability, race, ethnicity, nationality, gender identity and expression, sexual orientation, marital status, religious affiliation, or socioeconomic status.

For questions, comments, or concerns, please contact the Diversity and Inclusion Committee. EMGS: Diversity and Inclusion Committee (emgs-us.org)
Meetings & Poster Sessions

EMGS Committee Meetings

Participation at the committee level is a great opportunity to get involved with EMGS and engage with the leadership. Committees have contributed significantly to the growth of EMGS through their oversight and development of new programs. The EMGS committees are active throughout the year and meet during the conference. The committee meeting dates and times are noted in the agenda. Members are encouraged to be involved in a committee. Contact the committee chair if you are interested in serving on a committee.

EMGS Special Interest Groups

The Special Interest Groups represent the scientific diversity of EMGS, and SIG meetings are a time-tested favorite of the Annual Meeting. The format provides free-form discussions and short presentations of the key challenges and research needs of the interest area. The SIGs provide a casual way for young investigators and seasoned researchers to interact.

Business Meetings

The Business Meeting will take place on Friday, September 24 from 5:15 p.m. to 6:45 p.m. (EDST). All EMGS Members and interested EMGS Members are encouraged to attend.

Poster Session Q&As

Poster Sessions will be broken up into three blocks and will be held on Monday, September 20 at 11:00 a.m. to 1:05 a.m., Tuesday, September 21 at 11:00 a.m. to 1:05 p.m., and Wednesday, September 22 from 10:00 a.m. to 12:05 p.m. Posters will be pre-recorded and available for guests to view in early September. Guests are encouraged to type their questions in the right-side column of that poster session. These questions, and live questions will be answered in the Poster Sessions Q&A’s. To see a complete list of scheduled presentation times, go to [https://www.emgs-us.org/p/cm/lid/fid=679](https://www.emgs-us.org/p/cm/lid/fid=679).
Sponsor List

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Norman E. Sharpless, M.D., was officially sworn in as the 15th director of the National Cancer Institute (NCI) on October 17, 2017. Prior to his appointment, Dr. Sharpless served as the director of the Lineberger Comprehensive Cancer Center at the University of North Carolina (UNC), a position he held since 2014.

Dr. Sharpless was a Morehead Scholar at UNC–Chapel Hill and received his undergraduate degree in mathematics. He went on to pursue his medical degree from the UNC School of Medicine, graduating with honors and distinction in 1993. He then completed his internal medicine residency at the Massachusetts General Hospital and a hematology/oncology fellowship at Dana-Farber/Partners Cancer Care, both of Harvard Medical School in Boston.

After 2 years on the faculty at Harvard Medical School, he joined the faculty of the UNC School of Medicine in the Departments of Medicine and Genetics in 2002. He became the Wellcome Distinguished Professor of Cancer Research at UNC in 2012.

Dr. Sharpless is a member of the Association of American Physicians and the American Society for Clinical Investigation and is a Fellow of the Academy of the American Association of Cancer Research. He has authored more than 160 original scientific papers, reviews, and book chapters, and is an inventor on 10 patents. He cofounded two clinical-stage biotechnology companies: G1 Therapeutics and Sapere Bio (formerly HealthSpan Diagnostics).

Dr. Sharpless served as Acting Commissioner for Food and Drugs at the U.S. Food and Drug Administration for 7 months in 2019, before returning to the NCI directorship.
Dr. Cheryl Lyn Walker is a leader in the field of genetic, epigenetic, and environmental interactions. She has made seminal contributions to our understanding of how environmental exposures, especially endocrine-disrupting compounds (EDC) increase risk for hormone dependent cancers. She was among the first to show that tumor suppressor genes were the target for chemical carcinogens in the environment. She discovered that the tumor suppressor ATM, a DNA repair kinase, “moonlighted” in the cytoplasm controlling peroxisome number using ROS as a rheostat targeting excess/dysfunctional peroxisomes for elimination. This work solved a major riddle in cell biology (How do cells regulate peroxisome number?) and resulted in receipt of the Cozzarelli Prize from the National Academy of Sciences.

A leader in the field of hormone-dependent tumorigenesis, she developed an animal model for uterine leiomyoma/fibroids that became the gold-standard for research in this disease and provided key insights into how hormones and EDCs promote these tumors. One of her most important contributions was her identification of a molecular mechanism for EDC-induced reprogramming of the epigenome of developing tissues to increase disease susceptibility later in life, a process known as developmental reprogramming. Most recently, her epigenomic studies uncovered a new role for chromatin remodelers and elucidated that the epigenetic machinery of the Histone Code plays an equally important role in remodeling the cytoskeleton and directing the Tubulin Code.

Beyond her scientific contributions, she has had a tremendous impact on the field through activities including chair of the NIEHS TaRGET II Consortium, founder of the Center for Translational Environmental Health Research, and founder and director of the Center for Precision Environmental Health at Baylor College of Medicine. In 2016 she was elected to the National Academy of Medicine.
Professor Xiaoliang Sunney Xie is an internationally renowned scientist of biophysical chemistry. Prof. Xie received his BSc in chemistry from Peking University in 1984, and his PhD in physical chemistry in 1990 from UC San Diego. After a career at Pacific Northwest National Laboratory, he became the first tenured professor at Harvard University among Chinese Scholars who went to the US since the Reform in China.

As a pioneer of single molecule biophysical chemistry, coherent Raman scattering microscopy, and single cell genomics, he made major contributions to the emergence of these fields. Furthermore, Xie has made significant advances on medical applications of label-free optical imaging and single cell genomics. In particular his inventions have been used in in vitro fertilization and have benefited hundreds of couples in China in avoiding the transmission of their monogenic diseases to their newborns. In addition,

Prof. Xie has trained more than 100 graduate students and postdocs, many of whom have become professors at major universities around the world. Since 2010, he has been the Director of Biodynamic Optical Imaging Center (now renamed Biomedical Pioneering Innovation Center, BIOPIC) at Peking University, and in 2016 he became the Director of Beijing Advanced Innovation Center for Genomics (ICG). Starting July of 2018, he became the Lee Shau-kee Professor of Peking University, and Starting November of 2019, he became the Dean of Sciences at Peking University.

Prof. Xie is a member of the US National Academy of Sciences, and the US National Academy of Medicine, along with the US Academy of Arts and Sciences, and in 2017 he was elected as a foreign member of the Chinese Academy of Sciences. He has received many honors including the Albany Prize in Medicine and Biomedical Research, the American Chemical Society's Peter Debye Award and the Biophysical Society Founders' Award.
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<th>Date</th>
<th>Time</th>
<th>Committee/Meeting</th>
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<tr>
<td>Monday, September 1, 2021</td>
<td>3:00 p.m. - 4:00 p.m. (EDST)</td>
<td>Membership &amp; Professional Development Committee</td>
</tr>
<tr>
<td>Tuesday, September 7, 2021</td>
<td>11:30 a.m. - 12:30 p.m. (EDST)</td>
<td>Awards &amp; Honors Committee</td>
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<td>Wednesday, September 8, 2021</td>
<td>1:30 a.m. - 2:30 p.m. (EDST)</td>
<td>Hollaender Outreach Committee</td>
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<td>3:00 p.m. - 4:00 p.m. (EDST)</td>
<td>Finance/Fundraising Committee</td>
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<td>Thursday, September 9, 2021</td>
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<td>Public Relations &amp; Communications Committee</td>
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<td>Monday, September 13, 2021</td>
<td>3:00 p.m. - 4:00 p.m. (EDST)</td>
<td>Applied Genetic Toxicology SIG Meeting</td>
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<td>Tuesday, September 14, 2021</td>
<td>1:00 p.m. - 2:00 p.m. (EDST)</td>
<td>DNA Repair &amp; Mutagenic Mechanisms SIG Meeting</td>
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<td>4:00 p.m. - 5:00 p.m. (EDST)</td>
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<td>11:00 a.m. - 12:00 p.m. (EDST)</td>
<td>In Vivo Mutagenesis SIG Meeting</td>
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<td>5:00 p.m. - 6:00 p.m. (EDST)</td>
<td>Genomics and Data Sciences SIG Meeting</td>
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<td></td>
<td>4:00 p.m. - 5:00 p.m. (EDST)</td>
<td>Genotoxicity Risk Assessment and Public Health SIG Meeting</td>
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<td>Thursday, September 16, 2021</td>
<td>1:00 p.m. - 2:00 p.m. (EDST)</td>
<td>Germ Cell and Heritable Effects SIG Meeting</td>
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EMGS Annual Virtual Event Program

Monday, September 20, 2021

Block 1: Poster Sessions

11:00 a.m. - 1:05 a.m. (EDST)  PS1-PS25  Live Q&A Session with Poster Presenters

Tuesday, September 21, 2021

Block 2: Poster Sessions

11:00 a.m. - 1:05 a.m. (EDST)  PS26-PS50  Live Q&A Session with Poster Presenters

Wednesday, September 22, 2021

Block 3: Poster Sessions

10:00 a.m. - 12:05 p.m. (EDST)  PS51-PS76  Live Q&A Session with Poster Presenters

Platform 01: Genetox in General


12:15 p.m. - 12:30 p.m. (EDST)  P1  Estimation of Cutaneous Squamous Cell Carcinoma Incidence Attributable to Arsenic in U.S. Water Supplies  Masaoki Kawasumi, MD, PhD, University of Washington, Seattle, WA, (U.S.)

12:30 p.m. - 12:45 p.m. (EDST)  P2  Dead Cas9 Inhibits Uracil DNA Glycosylase Activity In Vitro  Jacob Antony, Washington State University, Pullman, WA, (U.S.)

12:45 p.m. - 1:00 p.m. (EDST)  P3  Telomeric 8-Oxoguanine Drives Rapid Premature Senescence in the Absence of Telomere Shortening  Ryan Barnes, PhD, University of Pittsburgh, Pittsburgh, PA, (U.S.)

1:00 p.m. - 1:15 p.m. (EDST)  P4  Roles for BER Enzymes in Telomeric 8-Oxoguanine Processing and Telomere Maintenance  Mariarosaria De Rosa, PhD, University of Pittsburgh, Pittsburgh, PA, (U.S.)

1:15 p.m. - 1:30 p.m. (EDST)  P5  Towards Omics Reporting Standards in Regulatory Toxicology: Introducing OECD Transcriptomics and Metabolomics Reporting Framework  Carole Yauk, PhD, University of Ottawa, Ottawa, Ontario, (Canada)
1:30 p.m. - 1:45 p.m. (EDST)  
**P6** Mechanistic Investigation of Black Cohosh Extract-Induced Genotoxicity in TK6 Cells  
Xiaoqing Guo, PhD, NCTR, US FDA, Jefferson, AR, (U.S.)

4:00 p.m. - 6:00 p.m. (EDST)  
**Council Meeting**

4:30 p.m. - 6:30 p.m. (EDST)  
**Bioinformatics Challenge**

**Keynote Speaker 01: Sunney Xie**

7:00 p.m. - 8:00 p.m. (EDST)  
K1 Sunney Xie, PhD, Dean of Sciences, Peking University, Beijing, (China)

**Thursday, September 23, 2021**

**Keynote Speaker 02: Ned Sharpless**

11:00 a.m. – 12:00 p.m. (EDST)  
K2 Norman “Ned” E. Sharpless, MD, Director, National Cancer Institute, Frederick, MD, (U.S.)

12:15 p.m. – 12:15 p.m. (EDST)  
**Break**

**Symposium 01**

12:15 p.m. - 1:45 p.m. (EDST)  
**Linking Mutational Spectra to Endogenous and Exogenous Exposures**

Mutational signatures have become indispensable tools for studying mutational processes underlying carcinogenesis. Increasing numbers of mutational signatures are being linked to endogenous and exogenous exposures, allowing new insights into their contribution to cancer etiologies. Mutational signatures form as the result of DNA damage induced by genotoxicants and the cellular repair mechanisms; therefore, mutational spectra of genotoxicants can not only link chemical exposures to pathogenesis, but also provide mechanistic information regarding chemical mutagenicity. As NGS technologies advance and become more accessible, analysis of mutational spectra of chemicals will become an integral part of genotoxicity assessment. The goals of this symposium are to highlight recent advances in identifying and understanding mutational signatures associated with chemical exposures and endogenous processes and to discuss the utility of mutational spectra in genetic toxicology. Applied Genetic and Toxicology SIG.

Chairs: Dan Roberts, PhD, Charles River Laboratories, Skokie, IL (U.S.) SNI Co-Chair: Eunnara Cho, PhD, Health Canada, Ottawa, ON, (Canada)
Symposium 02

12:15 p.m. -1:45 p.m. (EDST)  
**Epigenetics: From the Lab Bench to the Regulator’s Desk**

Exposure to environmental toxicants is associated with changes in the epigenome, which in turn orchestrate metabolic adaptation. Changes in the epigenome can be detected at very low levels of exposure, including exposure to non-genotoxic toxicants. It therefore bears great promise as a tool for risk assessment. However, major challenges remain before it can be fully incorporated into risk assessment. Challenges include establishing replicable epigenetic biomarkers of exposure and establishing links between these epigenomic alterations and disease. In this workshop, we use cancer as an example to discuss these challenges and avenues to overcome them. We first present evidence for the role of epigenetics in cancer and for long-term changes to the epigenome by exposure. We then discuss epigenetics from a regulator’s viewpoint. The session will conclude with a moderated panel discussion. During this discussion, gaps in research will be identified that will be needed in order to move the field towards incorporating epigenomic analysis into our risk assessment tool kit. Epigenetics SIG.

Chair: Jaclyn Goodrich, PhD, University of Michigan School of Public Health, Ann Arbor, MI, (U.S.)  
Co-Chair: Isabelle Miousse, PhD, University of Arkansas for Medical Sciences, Little Rock, AR, (U.S.)  
SNI Co-Chair: Sumira Phatak, Utah State University, Logan, UT, (U.S.)

12:15 p.m. to 12:40 p.m. (EDST)  
**Utility of Mutational Spectra to Identify Tumor Origin**  
Steve Rozen, PhD, Duke-NUS Medical School, (Singapore)

12:40 p.m. to 1:05 p.m. (EDST)  
**Application of Mutational Signatures of Carcinogens as Biomarkers of Cancer**  
Bogdan Fedele, PhD, and John Essigmann, PhD, Massachusetts Institute of Technology, Cambridge, MA, (U.S.)

1:05 p.m. to 1:25 p.m. (EDST)  
**Somatic Mutations, Genome Mosaicism, Aging and Disease**  
Jan Vijg, PhD, Albert Einstein College of Medicine, New York City, NY, (U.S.)

1:25 p.m. to 1:45 p.m. (EDST)  
**Glycidamide Hypermutation in Single-Stranded DNA is Dependent on Translesion Synthesis**  
Kate Hudson, PhD, National Institute of Environmental Health Sciences, Research Triangle Park, NC, (U.S.)

12:15 p.m. to 12:35 p.m. (EDST)  
**The Role of Epigenetics in Cancer**  
Trevor Archer, PhD, National Institute of Environmental Health Sciences, Research Triangle Park, NC, (U.S.)
12:35 p.m. to 12:55 p.m. (EDST) S6 Long-term Programming of Epigenetic Changes from Exposure
Lindsey Trevino, PhD, City of Hope, Duarte, CA, (U.S.)

12:55 p.m. to 1:15 p.m. (EDST) S7 The Regulatory Perspective on Epigenetics in Risk Assessment
Brian Chorley, PhD, National Health and Environmental Effects Research Laboratory, Research Triangle Park, NC, (U.S.)

1:15 p.m. to 1:45 p.m. (EDST) Moderated Panel Discussion: Where Do We Go from Here?

1:45 p.m. to 2:15 p.m. (EDST) Lunch Break

Spotlight Lecture

2:15 p.m. - 3:15 p.m. (EDST) Susan Wallace, PhD, University of Vermont, Burlington, VT, (U.S.), Andrea Lee, PhD, University of Vermont, Burlington, VT, (U.S.), Sylvia Doublie, PhD, University of Vermont, Burlington, VT, (U.S.), Aishwarya Prakash, PhD, University of South Alabama, Mobile, AL, (U.S.)

This year we are introducing a new format into the annual meeting. These Spotlight Lectures will provide a look into topics that are relevant to our members, but don’t fit into the standard structure of plenary/platform sessions or workshops. We hope you find these interesting and informative.

This year we will focus on mentor/mentee relationships and the role that this association can have on our members’ careers and our collective science. In this first, hour-long lecture you will hear from two mentor/mentee pairs that share a common thread in oncology research. Susan Wallace served as the mentor for Andrea Lee and Sylvie Doublie mentored Aishwarya Prakash.

3:15 p.m. – 3:30 p.m. (EDST) Break
Symposium 03

3:30 p.m. - 5:00 p.m. (EDST)

**Genetic Determinants of Disease Risk from Environmental DNA Damage**

Our cells are constantly responding to an onslaught of environmental toxicants that threaten the integrity of our genome. With the decreased cost of DNA sequencing and direct to consumer DNA testing, how one’s environmental exposures is compounded by our unique genetic makeup is going to revolutionize precision medicine and risk assessment. This symposium entitled “Variants of Unknown Significance in DNA Repair Genes and Disease Risk” will address current topics of how our environmental exposures are influenced by our genetics leading to different diseases, such as cancer. We will cover different types of DNA damage and how individual DNA repair variants of unknown significance should be considered in determining disease risk. DNA Repair and Mutagenic Mechanisms SIG

Chair: Kara Bernstein, PhD, University of Pittsburgh, PA, (U.S.)
Co-chair & SNI Co-Chair: Khadijeh Alnajjar, PhD, University of Arizona, Tucson, AZ, (U.S.)

3:30 p.m. to 3:50 p.m. (EDST) S8

**Identification of a Critical Region in RAD51C Found in Breast/Ovarian Cancer Variants of Unknown Significance**

Kara Bernstein, PhD, University of Pittsburgh, Pittsburgh, PA, (U.S.)

3:50 p.m. to 4:15 p.m. (EDST) S9

**Variants of Uncertain Significance in Lynch Syndrome Patients**

Aishwarya Prakash, PhD, University of South Alabama, Mobile, AL, (U.S.)

4:15 p.m. to 4:35 p.m. (EDST) S10

**Base Excision Repair Variants in Human Disease**

Joann Sweasy, PhD, Arizona State University, Tempe, AZ, (U.S.)

4:35 p.m. to 5:00 p.m. (EDST) S11

**Variants of Unknown Significance in MUTYH Unveil Features of Enzyme Function and Potential Impact in Cancer**

Sheila David, PhD, University of California, Davis, CA, (U.S.)

Platform 02: Mechanisms at Work

Platform Chairs: Amy Whitaker, PhD, University of Kansas Medical Center, Kansas City, KS, (U.S.), Laurie Sanders, PhD, Duke University, Durham, NC, (U.S.)

3:30 p.m. - 3:45 p.m. (EDST) P7

**Mutagen-Driven Primary Cell Immortalization and Underlying Epigenomic and Transcriptomic Remodeling**

Shefali Thakur, PhD, IARC, Epigenomics and Mechanisms Branch, Lyons, (France)

3:45 p.m. - 4:00 p.m. (EDST) P8

**Set2 Histone Methyltransferase Regulates Transcription Coupled Nucleotide Excision Repair in Yeast**

Kathiresan Selvam, Washington State University, Pullman, WA, (U.S.)
<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tr>
<td>4:00 p.m. - 4:15 p.m. (EDST)</td>
<td>P9</td>
<td>Transcription Factors Bind to UV Lesions and Interfere with Damage Recognition by UV-DDB</td>
<td>Zachery Mielko, PhD, <em>Duke University</em>, Durham, NC, (U.S.)</td>
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<tr>
<td>4:15 p.m. - 4:30 p.m. (EDST)</td>
<td>P10</td>
<td>The Coordinated Handling of Damaged DNA by Base Excision Repair Proteins</td>
<td>Max Fairlamb, <em>University of Kansas Medical Center</em>, Kansas City, KS, (U.S.)</td>
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<tr>
<td>4:30 p.m. - 4:45 p.m. (EDST)</td>
<td>P11</td>
<td>Titanium Dioxide Nanoparticles Molecular Effects: Internalization in the Human Intestinal Epithelium</td>
<td>Dora Luisa Bispo Rolo, PhD, <em>National Institute of Health Dr. Richard Jorge</em>, Lisbon, (Portugal)</td>
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<tr>
<td>4:45 p.m. - 5:00 p.m. (EDST)</td>
<td>P12</td>
<td>Genotoxicity Assessment of Molnupiravir In Vitro and In Vivo</td>
<td>Patricia Escobar, PhD, <em>Merck &amp; Co, Inc.</em>, Kenilworth, NJ, (U.S.)</td>
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<td>5:00 p.m. - 5:15 p.m. (EDST)</td>
<td></td>
<td>Break</td>
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Friday, September 24, 2021

Keynote Speaker 03: Cheryl Lyn Walker

5:15 p.m. - 6:15 p.m. (EDST)  K3  Cheryl Lyn Walker, PhD, Director, Center for Precision Environmental Health, Baylor College of Medicine, Houston, TX, (U.S.)

EMGS 2021 Alexander Hollaender Award Lecture: John O. Rundell

11:00 a.m. - 12:00 p.m. (EDST)  L1  2021 Alexander Hollaender Award Lecture: A Short History of S9  
John O. Rundell, PhD, Moltox, Boone, NC, (U.S.)

12:00 p.m. - 12:15 p.m. (EDST)  Break

Symposium 04

12:15 p.m. - 1:45 p.m. (EDST)  Interpretation of Genotoxicity Dose-response Information in a Human Health Context

Genetic toxicology assessments are performed to protect human health, which makes the human relevance of genetic toxicology data an issue of critical importance. There are two overarching strategies to make genetic toxicology assessments human-relevant: 1) selection of models integrated with dosimetrics to make the experimentally derived data as human-relevant as possible, and 2) through post-hoc evaluation of human-relevance and the application of safety/uncertainty factors for interpretation of dose-response data in a risk assessment context. This symposium will provide a high level overview of approaches to design and implement experimental strategies to maximize human relevance. This will include discussion of the importance of adding genotoxicity assessments in human cell models to regulatory genetic toxicology decision making, the utility of different endpoints, along with the application of physiologically-based pharmacokinetic modeling for interspecies extrapolation, and lastly, the choice of appropriate uncertainty factors for human-relevant interpretation of in vivo dose-response data.

Chair: Leslie Recio, PhD, DABT, Integrated Laboratory Systems, Inc., Research Triangle Park, NC, (U.S.) Co-Chair: Paul White, PhD, Health Canada, Ottawa, ON, (Canada), SNI Co-Chair: Marc Beal, PhD, Health Canada, Ottawa, ON, (Canada)
12:15 p.m. to 12:35 p.m. (EDST)  S12  Genotoxicity Assessments in Human Cell and Tissue Models as New Alternative Methods to in Vivo Models in Genetic Toxicology
Leslie Recio, PhD, Integrated Laboratory Systems, Inc., Research Triangle Park, NC, (U.S.)

12:35 p.m. to 12:50 p.m. (EDST)  S13  In Vitro to In Vivo Extrapolation Incorporating Pharmacokinetics
Marc Beal, PhD, Health Canada, Ottawa (C.A.) and Katie Paul Friedman, PhD, US Environmental Protection Agency, Research Triangle Park, NC, (U.S.)

12:50 p.m. to 1:10 p.m. (EDST)  S14  PBPK Modeling and In Vitro to In Vivo Extrapolation (IVIVE) Modeling
Shannon Bell, PhD, Integrated Laboratory Systems, Inc., Research Triangle Park, NC, (U.S.)

1:10 p.m. to 1:25 p.m. (EDST)  S15  Situations Where In Vivo Analysis of Mutational Endpoints is Needed and Approaches to Achieve Human Relevance.
Robert Heflich, PhD, FDA National Center for Toxicological Research, Jefferson, AR, (U.S.)

1:25 p.m. to 1:45 p.m. (EDST)  S16  Quantitative Interpretation of In Vivo Mutagenicity Dose-Response Data; UF for Calculation of Human Exposure Limits
Paul White, PhD, Health Canada, Ottawa, ON, (Canada)

Platform 03: Genomic Instability and Motifs

Platform Chairs:  Yuan Liu, MD, PhD, Florida International University, Miami, FL, (U.S.), Ryan Barnes, University of Pittsburgh, Pittsburgh, PA, (U.S.)

12:15 p.m. to 12:30 p.m. (EDST)  P13  Base Excision Repair of Oxidatively Damaged G-quadruplex DNA
Amy Michelle Whitaker, PhD, University of Kansas Medical Center, Kansas City, KS, (U.S.)

12:30 p.m. to 12:45 p.m. (EDST)  P14  Cruciform DNA Formed at Short Inverted Repeats: A Source of Genetic Instability In Vivo
Pooja Mandke, PhD, University of Texas at Austin, Austin, TX, (U.S.)

12:45 p.m. to 1:00 p.m. (EDST)  P15  Chronic Hexavalent Chromium Exposure Causes Persistent Securin Disruption and Induces Chromosomes Instability
Jennifer Toyoda, University of Louisville, Louisville, KY, (U.S.)
1:00 p.m. to 1:15 p.m. (EDST)  P16  Germline Variant of NTHL1 Glycosylase Induces Defective DNA Repair, Replication Stress and Genomic Instability in Mouse Embryonic Fibroblasts Isolated from a Knock in Mice Model  Lipsa Das, PhD, University of Arizona, Tucson, AZ, (U.S.)

1:15 p.m. to 1:30 p.m. (EDST)  P17  Genetic Determinants of Disease Risk from Environmental DNA Damage  Sarah Ruth Hengel, PhD, Department of Pharmacology and Chemical Biology, Pittsburgh, PA, (U.S.)

1:30 p.m. to 1:45 p.m. (EDST)  P18  DNA Hypermethylation Causes Genetic Instability by Altering DNA and Chromatin Structures  Guliang Wang, MD, PhD, University of Texas at Austin, Austin, TX, (U.S.)

1:45 p.m. - 2:15 p.m. (EDST)  Lunch Break

EMGS 2021 Award Lecture: Richard Wood

2:15 p.m. - 3:15 p.m. (EDST)  EMGS 2021 Award Lecture: DNA Polymerase Theta, a Preventor of Catastrophes in Eukaryotic Genomes  Richard Wood, PhD, The University of Texas MD Anderson Cancer Center, Houston, TX, (U.S.)

3:15 p.m. - 3:30 p.m. (EDST)  Break
### Symposium 05

**3:30 p.m. - 5:00 p.m. (EDST)**

**Personalized Epidemiology: Assessment of Individual Cancer Risk Using Compendiums of Damaging Endogenous and Environmental Processes**

In the last decade, we observed an increase in large cohort studies that are successfully mining patterns of endogenous and environmental mutagenic processes from clonally expanded laboratory or patient samples. The utilities of these patterns are beginning to be revealed, and research is now under way to better understand if these patterns can be used as a biomarker of cancer risk for the individual. As we look towards the future, we would like to explore how validated patterns of mutagenesis, with tangible etiologies extracted from large cohorts, can be leveraged for longitudinal personalized cancer risk assessment.


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<th>Speaker</th>
<th>Institution</th>
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<tr>
<td>3:30 p.m. to 3:50 p.m. (EDST)</td>
<td>S17</td>
<td><strong>Mutational Signatures in Experimental Models: From Induced Pluripotent Stem Cells to Tissue-Derived Organoids</strong></td>
<td>Jill Kucab, PhD, <em>King’s College London</em>, London, (U.K.)</td>
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<td>3:50 p.m. to 4:15 p.m. (EDST)</td>
<td>S18</td>
<td><strong>Non-invasive Detection of Aristolochic Acid Exposure Using Ultra-Sensitive Duplex Sequencing</strong></td>
<td>Arnoud Boot, PhD, <em>Duke-NUS Medical School</em>, (Singapore)</td>
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<td>4:15 p.m. to 4:35 p.m. (EDST)</td>
<td>S19</td>
<td><strong>The Mutational Signature Profile of Known and Suspected Human Carcinogens in Mice</strong></td>
<td>Laura Riva, PhD, <em>Sanger Institute</em>, Hinxton, CB, (U.K.)</td>
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<tr>
<td>4:35 p.m. to 5:00 p.m. (EDST)</td>
<td>S20</td>
<td><strong>A Compendium of Mutational Signatures of Environmental Agents</strong></td>
<td>Jiri Zavadil, PhD, <em>International Agency for Research on Cancer</em>, Lyon, (France)</td>
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</table>
Platform 04: Tools and New Technology

Platform Chairs: Leah Wehmas, PhD, US EPA, Hillsborough, NC, (U.S.), Luoping Zhang, PhD, University of Berkeley, Berkeley, CA, (U.S.)

3:30 p.m. -3:45 p.m. (EDST)  P19  Adopting Duplex Sequencing Technology for Genetic Toxicity Testing: A Proof-of-Concept Mutagenesis Experiment with N-Ethyl-N-Nitrosourea (ENU)-Exposed Rats
Stephanie Smith-Roe, PhD, Division of the National Toxicology Program/NIEHS, Research Triangle Park, NC, (U.S.)

3:45 p.m. -4:00 p.m. (EDST)  P20  CarcSeq Quantification of Lung Cancer Driver Mutations Forecasts Mouse Strain- and Sex-Related Incidence of Spontaneous Lung Neoplasia
Kelly Harris, PhD, National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR, (U.S.)

4:00 p.m. -4:15 p.m. (EDST)  P21  In Vitro Micronucleus Assay Benefits from a Panel of DNA Damage Response Biomarkers
Stephen Dertinger, PhD, Litron Laboratories, Rochester, NY, (U.S.)

4:15 p.m. -4:30 p.m. (EDST)  P22  Deploying Artificial Intelligence and Systematic Review Tools in Adverse Outcome Pathway Development: A Space Travel Case Study
Tatiana Kozbenko, PhD, Health Canada & University of Ottawa, Ottawa, ON, (Canada)

4:30 p.m. -4:45 p.m. (EDST)  P23  The Use of ROS Scavengers and the ToxTracker® Assay for Mode of Action Information as a Follow-up for Positive Findings in the TK6 Micronucleus Assay
Ashley Allemang, MS, Proctor & Gamble, Cincinnati, OH, (U.S.)

4:45 p.m. -5:00 p.m. (EDST)  P24  Towards a Better Prediction of Xenobiotic Genotoxicity: CometChip Technology Coupled with A 3D Model of HepaRG Human Liver Cells
Audrey Barranger, PhD, ANSES, Fougères, (France)

5:15 p.m. -6:45 p.m. (EDST)  Business Meeting

Saturday, September 25, 2021

11:00 a.m. -12:00 p.m. (EDST)  L3  Young Scientist Award Lecture: Molecular Basis of UV-Induced Mutations in the Mitochondrial Genome
Hailey Gahlon, PhD, ETH Zürich, Zürich, Switzerland

12:00 p.m. -12:15 p.m. (EDST)  Break
Germ Cell Mutations and Developmental Mosaicism: Potential Health Implications

Mutations have a causal role in genetic disease and cancer. In addition, they have the ability to induce mosaicism; the existence of genetically distinct cell populations in one organism. Mutations or mosaicism that occur de novo, in the germline, the placenta or in early development, are of particular concern due to their influence on the health of the succeeding generation. Indeed, mosaicism has been associated with multiple genetic diseases and, when present in germ cells, can lead to embryonic lethal disorders. The advancement of whole genome sequencing has enabled the efficient characterization of mutations as well as the identification and quantification of mosaicism in somatic and germline tissues. Speakers will present their findings on de novo mutation rate in human cohorts with different ancestral backgrounds, the burden of somatic mutation and mosaicism in human placentas, and the risks associated with stable mosaic mutations in sperm.

Chair: Jonatan Axelsson, PhD, Lund University and Skåne University Hospital, Malmö, (Sweden),
Co-Chair: Carole Yauk, PhD, University of Ottawa, Ottawa, ON, (Canada),
Ni Co-Chair: Danielle LeBlanc, Mechanistic Studies Division, Health Canada, Ottawa, ON, (Canada).

12:15 PM to 12:45 PM (EDST)  S21  De Novo Mutations and Spectra in Different Ancestries - Reductions in People with Lower Mutagen Exposure
Michael Kessler, PhD, Health Sciences Facility, MD, (U.S.)

12:45 PM to 1:15 PM (EDST)  S22  Somatic Mosaicism in Healthy and Diseased Placentas
Amelia Wallace, PhD, University of Utah, Salt Lake City, UT, (U.S.)

1:15 PM to 1:45 PM (EDST)  S23  Temporal Stability of Human Sperm Mosaic Mutations Results in Life-long Threat of Transmission to Offspring
Xiaoxu Yang, PhD, University of California, San Diego, La Jolla, CA, (U.S.)

Platform 05: Smoke, Tobacco and Nicotine

Platform Chairs: Hong Ji, PhD, University of California, Davis, CA, (U.S.), Shobhan Gaddameedhi, PhD, NC State University, Raleigh, NC, (U.S.)

12:15 p.m. -12:35 p.m. (EDST)  P25  Exposure to Polycyclic Aromatic Hydrocarbons and Nicotine, and Sperm DNA Fragmentation
Jonatan Axelsson, MD, PhD, Lund University and Skåne University Hospital, Malmö, (Sweden)

12:35 p.m. -12:50 p.m. (EDST)  P26  Integrative Toxicogenomic Analysis of Cell Exposure to Arsenic and Smokeless Tobacco
Samrat Das, PhD, International Agency for Research, Lyon, (France)
12:50 p.m. - 1:10 p.m. (EDST)  P27  Tobacco Smoke Exposure Alters CD8 T Cell Composition Towards Immune Dysfunction and Aging  
Michelle Renee Campbell, MB, NIEHS/NIHS, Durham, NC, (U.S.)

1:10 p.m. - 1:25 p.m. (EDST)  P28  The Pyridyloxobutyl DNA Adducts Formed from Tobacco Specific Nitrosamines Yield a Unique Mutational Signature in Both Cell and Animal Models  
Lisa Peterson, PhD University of Minnesota, Saint Paul, MN, (U.S.)

1:25 p.m. - 1:45 p.m. (EDST)  P29  Early-Life Wildfire Smoke Exposure Leads to Long-Term Changes to the Methylome in Rhesus Macaques  
Anthony Brown, PhD, University of California, Davis, CA, (U.S.)

1:45 p.m. - 2:15 p.m. (EDST)  Lunch Break

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### Spotlight Lecture (Health Canada)

2:15 p.m. - 3:15 p.m. (EDST)  Francesco Marchetti, PhD\(^1\), Paul White, PhD\(^1\), Jason O’Brien, PhD\(^2\), Alexandra Long, PhD\(^3\), \(^1\)Health Canada, Ottawa, ON, (Canada), \(^2\)Environment and Climate Change Canada, Ottawa, ON, (Canada), \(^3\)University of Toronto, Toronto, ON, (Canada).

This year we are introducing a new format into the annual meeting. These Spotlight Lectures will provide a look into topics that are relevant to our members, but don’t fit into the standard structure of plenary/platform sessions or workshops. We hope you find these interesting and informative.

Our second Spotlight shines on another two-by-two team from Health Canada made up of Francesco Marchetti mentoring Jason O’Brien and Paul White mentoring Alexandra Long. These investigators have focused on genetic toxicology in a regulatory setting, and they all currently continue their efforts in these field.

Without giving more away, we invite you to attend these sessions to not only learn more about our members and their work, but to see the impact of these relationships and how they shape the paths and productivity of our members.

3:15 p.m. – 3:30 p.m. (EDST)  Break
### Symposium 07

**Development and Application of Genomic Approaches to Evaluate Human Cancer Risk**

Current approaches to assess human cancer risk of chemicals, environmental agents and therapeutics continue to rely on decades old approaches of assessing mutagenicity in bacteria (Ames assay), cytogenetic effects and chronic rodent bioassays. More contemporary genomic tools focused on transcriptomic and DNA sequencing are affording a more direct and higher resolution view to the impact of chemical exposures on the genome, and in turn providing a more sensitive, translationally relevant, and mechanistically based approach to assess cancer risk. This symposium aims to provide a current view to a number of workstreams focused on validating these genomic tools and showcasing their application to evaluating genotoxicity and human cancer risk.

Chair: Sheroy Minocherhomji, PhD, Amgen, Thousand Oaks, CA, (U.S.) Co-Chair: Clint Valentine, PhD, TwinStrand Biosciences, Seattle, WA, (U.S.)

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| 3:30 PM to 3:45 PM (EDST) | S24 CarcSeq Quantification of Cancer Drive Mutations: Early Biomarker of Clonal Expansion for Prediction of Future Neoplasia  
Barbara Parsons, PhD, US-FDA NCTR, Jefferson, AR, (U.S.) |
| 3:45 PM to 4:00 PM (EDST) | S25 Genomic Instability: A Key Characteristic of Carcinogens and Methods to Evaluate It  
Sheroy Minocherhomji, PhD, Amgen, Thousand Oaks, CA, (U.S.) |
| 4:00 PM to 4:15 PM (EDST) | S26 Towards Reduction and Replacement of the 2-year Rodent Bioassay Using Genomic Approaches: Update from eSTAR and Impact on ICH S1  
Chris Corton, PhD, U.S. Environmental Protection Agency, Washington, DC, (U.S.) |
| 4:15 PM to 4:30 PM (EDST) | S27 Detecting Low-frequency Clonally Expanded Cell Populations Using Duplex Sequencing as Potential Biomarkers of Nongenotoxic Carcinogens and Preneoplastic Events  
Keith Tanis, PhD, Merck Research Laboratories, West Point, PA, (U.S.) |
| 4:30 PM to 4:45 PM (EDST) | S28 Optimal Methodological design for Duplex Sequencing™ in TK6 Cells Determined Through a Time and Concentration Response Analysis Following ENU Treatment  
Eunnara Cho, Health Canada, Ottawa, ON, (Canada) |

4:45 PM to 5:00 PM (EDST): 15 min. Moderated Discussion Panel
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<tr>
<td>3:30 PM to 3:45 PM (EDST)</td>
<td>P30</td>
<td>The Mutational Landscape of Human Somatic and Germline Cells</td>
<td>Raheleh Rahbari, PhD, Sanger Institute, Hinxton, CB, (U.K.)</td>
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<tr>
<td>3:45 PM to 4:00 PM (EDST)</td>
<td>P31</td>
<td>Advanced Age Increases Frequencies of De Novo Mitochondrial Mutations in Macaque Oocytes and Somatic Tissues</td>
<td>Barbara Arbeithuber, PhD, Johannes Kepler University, Linz, (Austria)</td>
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<tr>
<td>4:00 PM to 4:15 PM (EDST)</td>
<td>P32</td>
<td>The Association Between Serum Oestradiol Levels and Sperm DNA Integrity</td>
<td>Viktor Lu, Lund University, Lund, Scania, (Sweden)</td>
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<td>4:15 PM to 4:30 PM (EDST)</td>
<td>P33</td>
<td>Early Gestational Bisphenol Exposure and DNA Methylation in Placenta, Cord Tissue, and Infant Cord Blood</td>
<td>Carolyn McCabe, PhD, University of Michigan, Ann Arbor, MI, (U.S.)</td>
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<tr>
<td>4:30 PM to 4:45 PM (EDST)</td>
<td>P34</td>
<td>Intergenerational Effects of In Utero Arsenic Exposure on Mouse Physiology and Epigenome</td>
<td>Mathia Colwell, PhD, University of Minnesota, Saint Paul, MN, (U.S.)</td>
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<td>4:45 PM to 5:00 PM (EDST)</td>
<td>P35</td>
<td>Sex-Specific Programming of Cardiac DNA Methylation in Weanling Mice by Developmental Lead Exposure</td>
<td>Laurie Svoboda, PhD, University of Michigan, Ann Arbor, MI, (U.S.)</td>
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Block 1
DNA Repair Mutagenic Mechanisms

PS1
Sequence and Structural Analysis of Zinc Finger GRF Motifs in Genome Integrity. Matos J, Yan S. University of North Carolina at Charlotte, NC, United States.

PS2
DNA Base Excision Repair Capacity in Tissues of Friedreich’s Ataxia Transgenic Mice. Shariff A1, Diaz N1, Lai Y1, Agoulnik I1, Liu Y1,2,3,4. 1Department of Chemistry and Biochemistry, Florida International University, 2Department of Human and Molecular Genetics, Florida International University, 3Biochemistry Ph.D. Program, Florida International University, 4Biomolecular Sciences Institute, Florida International University, Miami, FL, United States.

PS3
Mechanistic Insight into Cleavage of an Abasic Site in Single Stranded DNA by AP-Endonuclease 1 (APE1). Hoitsma, NM1, Pytko, K2, Hedglin, M3, Freudenthal, BD4. 1University of Kansas Medical Center, Kansas City, KS, United States, 2The Pennsylvania State University, University Park, PA, United States.

PS4
Damaged DNA Containing Cyclobutane Pyrimidine Dimers is associated with Small Extracellular Vesicles. Carpenter MA, Kemp MG. 1Department of Pharmacology and Toxicology, Wright State University Boonshoft School of Medicine, Dayton, OH, United States.

PS5
Particulate Hexavalent Chromium Induces Loss of RAD51 Leading to Increased Genomic Instability, A Driver of Carcinogenesis. Meaza I1, Toyoda JH1, Lu H1, Williams A1, Wise SS1, Wise JP Sr1. 1University of Louisville, Louisville, KY, United States.

PS6
Contraction of Trinucleotide Repeats Through Base Excision Repair Attenuates Frataxin Deficiency in Friedreich’s Ataxia. Liu Y, Lai Y. Department of Chemistry and Biochemistry, Florida International University, Miami, FL, United States.

PS7
Determining How Ribonucleotides Impact Telomere Integrity. Welfer GA1, Schaic MA1, Sanford SL1, Peresko PLA1, Freudenthal BD2. 1Department of Environmental and Occupational Health, University of Pittsburgh Graduate School of Public Health and UPMC Hillman Cancer Center, Pittsburgh, PA, United States, 2Department of Biochemistry and Molecular Biology, University of Kansas Medical Center, Kansas City, KS, United States.

PS8
PARP1 and PARP2 Cooperation in the Prevention of Oxidative Stress-Mediated Telomere Crisis. Muioio D1, Werner N1, Darko-Larbi S1, Uttam S2, Fouquerel E1. 1Department of Biochemistry and Molecular Biology, Thomas Jefferson University, Philadelphia, PA, United States, 2Department of Computational and Systems Biology, UPMC Hillman Cancer Center, University of Pittsburgh, Pittsburgh, PA, United States.

PS9
Understanding the Cell Type Specificity on Potential for Inter-Chromosomal Homologous Recombination to Repair Chromosomal Double-breaks Using a Unique “Rainbow Mouse” Model. Lalwani K1, Richardson C1. 1University of North Carolina at Charlotte, NC, United States.

PS10

PS11
A Budding Yeast System for Measuring CYP1B1-activation of Genotoxins. Fasullo M1, Kannan K2, Perpetua N1, Dolan M1. 1SUNY Polytechnic Institute, Marcy, NY, United States, 2University of Minnesota, Saint Paul, MN, United States.

PS12
PS13
Mutagenesis at Non-B DNA Motifs in the Human Genome: A Course Correction. McGinty RJ¹,², Sunyaev SR¹.¹ Department of Biomedical Informatics, Harvard Medical School, Boston, MA, United States, ²Division of Genetics, Department of Medicine, Brigham and Women’s Hospital and Harvard Medical School, Boston, MA, United States.

PS14
Biological Impact of Low Dose Radiation on Mitochondrial Defective Lymphoblastoid Cells. Pluth JM², Chen J¹, Sridharan DM¹, Cross C¹. ¹University of California, Berkeley, Berkeley, CA, United States, ²University of Nevada, Las Vegas, NV, United States.

PS15
Interaction Between Methionine Restriction and Cisplatin on DNA Damage and Apoptosis. Shukla T, Morehead LCE, Miousse, IR. University of Arkansas for Medical Sciences, University of Arkansas at Little Rock, Little Rock, AR, United States.

PS16
Investigating the Effects of Clustered DNA Damage on Increased Transcriptional Mutagenesis and Related Toxicity of Mutant Alpha-Synuclein. Modi M, Lu X², Kilgore P³, Cvek U³, Maynard M⁴, Chen K⁴, Harrison L¹.¹ Department of Molecular and Cellular Physiology, ²Department of Pharmacology and Toxicology, LSU Health Sciences Center, Shreveport LA, ³Department of Computer Science, LSU, Shreveport LA, United States, ⁴Willis-Knighton Cancer Center, Shreveport, LA, United States.

PS17

PS18
RNA-guided DNA Synthesis by DNA Repair Polymerases Mediates DNA Strand Break Repair. Tsegay PS¹, Qu F¹, Hernandez D², Yang W³, and Liu Y¹,².¹ Biochemistry Ph.D. Program, Florida International University, Miami, FL, United States. ²Department of Chemistry and Biochemistry, Florida International University, Miami, FL, United States. ³National Institute of Diabetes, Digestive, and Kidney Diseases (NIDDK)/National Institutes of Health (NIH), Bethesda, Maryland, United States. ⁴Biomolecular Sciences Institute, Florida International University, Miami, Florida, United States.

PS19
Oxidative RNA Damage Disrupts N6-methyladenosine (m6A) Profile Leading to Deregulation of the DNA Repair Gene. Qu F¹, Tsegay PS¹, Marin C², Brache C², and Liu Y¹.².³ Biochemistry Ph.D. Program, ²Department of Chemistry and Biochemistry, ³Biomolecular Sciences Institute, Florida International University, Miami, FL, United States.

PS20
A Whale of a Tale: Whale Lung Cells Resist Particulate Cr(VI)-Induced Chromosome Instability. Wise JP, Sr, Lu H¹, Wise SS¹, Toyoda JH¹, Speer RM¹, Bolt A². ¹Wise Laboratory of Environmental and Genetic Toxicology, Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY, United States, ²Department of Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM, United States.

PS21
Particulate Hexavalent Chromium Targets RAD51 Paralogs Leading to Loss of Homologous Recombination Repair in Metal Carcinogenesis. Williams A, Speer RM, Browning C, Meaza I, Toyoda JH, Wise JP, Sr. Wise Laboratory of Environmental and Genetic Toxicology, Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY, United States.
Identification of Human Mitochondrial Transcription Factor A as an Interaction Partner of the NEIL1 DNA Glycosylase. Sharma N1, Arrington JF1, Thompson MK1, Terry DM1, Prevelige PE2, Prakash A1. 1University of South Alabama, Department of Biochemistry and Molecular Biology, Mitchell Cancer Institute, Mobile, AL, United States. 2Department of Microbiology, University of Alabama at Birmingham, Birmingham, AL, United States.

Impact of G-quadruplexes on DNA Double-Strand Break Repair by End-Joining. Selvaraj S*1, Seiver JA*2, Larson ED3, Hanakahi LA4. 1Department of Biomedical Sciences, University of Illinois at Chicago, College of Medicine, Rockford, IL, United States. 2College of Pharmacy, University of Illinois at Chicago, Rockford, IL, United States. 3Department of Biomedical Sciences, Western Michigan University Homer Stryker MD School of Medicine, Kalamazoo, MI, United States. 4Department of Pharmaceutical Sciences, College of Pharmacy, University of Illinois at Chicago, Rockford, IL, United States. *Both authors contributed equally to this work.

Characterization of Novel Single-Domain Nanobodies Against NEIL1. Thompson MK1,2, Sharma N1,2, Arrington JF1,2, Andrews JF1, Prakash A1,2. 1Mitchell Cancer Institute, University of South Alabama Health, Mobile, AL, United States, 2Department of Biochemistry and Molecular Biology, University of South Alabama, Mobile, AL, United States.

Cancer-Associated Topoisomerase 1 Mutants and G-Quadruplex-Induced Genomic Instability. Berroyer A1, Kim N1. 1University of Texas Health Science Center, Houston, TX, United States.

Analysis of UVA Radiation Induced Mutagenesis in Translesion Synthesis-deficient Human Cells. Corradi C1, Ruiz NQ2, Moreno NC3, Latancia MT1, Leandro GS1, Souza TA4, Menck CFM1. 1DNA Repair Laboratory, Institute of Biomedical Sciences, University of Sao Paulo, Sao Paulo, SP, Brazil, 2Multidisciplinary Laboratory in Food and Health, Faculty of Applied Sciences, University of Campinas, Limeira, SP, Brazil, 3Mitochondrial Genetics Laboratory, Institute of Chemistry, University of Sao Paulo, Sao Paulo, SP, Brazil, 4Tau GC Bioinformatics, Cotia, SP, Brazil.

Bioflavonoids and Environmental Compounds Generate DNA Damage through Topoisomerase II Inhibition and Oxidative Stress. McKleny D1, Sielaty R1, Lalwani K1, Richardson C1. 1UNC Charlotte, Charlotte, NC, United States.

Revealing the Molecular Mechanisms of Maintaining ssDNA Stability. Yan S. University of North Carolina at Charlotte, Charlotte, NC, United States.

Single-molecule Tools to Directly Visualize DNA-binding Proteins. Gates EM1, Lin J1, Haghizadeh A1, Lissek E1, Simpson T1, Johnson M1, Candelli A2. 1LUMICKS, Waltham, MA, United States, 2LUMICKS, Amsterdam, The Netherlands.

Differential Expression of Murine piRNAs in Adult Tissues Following Perinatal Lead Exposure. Perera BPU1, Wang K2, Neier K3, Chen K1, Svoboda LK1, Goodrich JM1, Sartor MA2,4, Dolinoy DC1,5. 1Department of Environmental Health Sciences, University of Michigan, School of Public Health, Ann Arbor, MI, United States.

Epigenomics
**PS31**
Prenatal Exposures to Common Phthalates and Prevalent Phthalate Alternatives are Associated with Infant DNA Methylation at Birth. Petroff R1, Padmanabhan V1,2, Dooling DC1,2, Watkins DJ1, Ciarelli J1, Haggerty D4, Paneth N3,6, Ruden D7, Goodrich JM1. 1Department of Environmental Health Sciences, University of Michigan, Ann Arbor, MI, United States, 2Department of Pediatrics, University of Michigan, Ann Arbor, MI, United States, 3Department of Nutrition Sciences, University of Michigan, Ann Arbor, MI, United States, 4Scholarly Activities and Scientific Support, Spectrum Health West Michigan, Grand Rapids, MI, United States, 5Department of Epidemiology & Biostatistics, Michigan State University, East Lansing, MI, United States, 6Department of Pediatrics & Human Development, Michigan State University, East Lansing, MI, United States, 7Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI, United States.

**PS32**
Triclosan Down-regulates Fatty Acid Synthase Through MicroRNAs in Human Hepatocytes. Zhang ZZ, Sun D, Zhao T. Department of Environmental and Occupational Health, Sichuan University West China School of Public Health and West China Fourth Hospital, Chengdu, Sichuan, China.

**Applied Genetic Toxicology**

**PS33**
Soap and Water is the Most Effective Skin PAH Decontamination Method for Firefighters, But It Doesn’t Reduce the Internal Dose. Keir JL1, Kirkham TL2, Aranda-Rodriguez R3, White PA3, Blais JM1. 1Department of Biology, University of Ottawa 2Dalla Lana School of Public Health, University of Toronto 3Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada.

**PS34**
Optimal Design of In Vivo Studies Employed for Quantitative Assessment of Genotoxicity. Long AS1, Beal M2, White PA3. 1Department of Pharmacology & Toxicology, Faculty of Medicine, University of Toronto, Toronto, Canada. 2Existing Substances Risk Assessment Bureau, Health Canada, Ottawa, Canada. 3Mechanistic Studies Division, Environmental Health Science and Research Bureau, Health Canada, Ottawa, Canada.

**PS35**
What Different Mutagens Do Salmonella TA98 and TA100 Detect? Cross KP1, DeMarini DM2. 1Instem, Columbus, OH, United States, 2Chapel Hill, NC, United States.

**PS36**
Micro(nano)-Plastics Induction of Inflammation and DNA Damage: Does It Have Implications for Cancer Development? Alimba CG, Cell Biology and Genetics Unit, Department of Zoology, University of Ibadan, Ibadan, Nigeria, Department of Toxicology, Leibniz Research Centre for Working Environment and Human Factors (IfADo), Technical University of Dortmund, Dortmund, Germany.

**PS37**
Dihydroxyacetone Exposure Induces Metabolic and Mitochondrial Stress in HepG3 Cells. Hernandez A1,2, Sonavane M1,2, Smith KR, Seiger J, Gassman NR1,2. 1Department of Physiology and Cell Biology, University of South Alabama, College of Medicine, Mobile, AL United States, 2Mitchell Cancer Institute, University of South Alabama, Mobile, AL United States.

**PS38**
Temporal and Concentration Concordant Evidence Supporting That Increases in Reactive Oxygen Species Lead to Chromosomal Aberrations in an Adverse Outcome Pathway. Huliganga E, Cho E1,3, Marchetti F2,3, Yauk CL1. 1Department of Biology, Faculty of Science, University of Ottawa, Ottawa, ON, Canada 2Mechanistic Studies Division, Environmental Health Science and Research Bureau, Health Canada, Ottawa, Ontario, Canada, 3Department of Biology, Faculty of Science, Carleton University, Ottawa, ON, Canada.

**PS39**
Quantitative Dose Response Modelling of Historical ToxTracker Data to Evaluate In Vitro Genotoxicity and Mode of Action. Brandsma I1, Osterlund T1, Boisvert L2, White P2, Hendriks G1. 1Toxys, Leiden, Netherlands, 2Health Canada, Ottawa, ON, Canada.

**PS40**
NRF2 Modulates Ferroptosis in Temozolomide-Resistant Glioblastoma Cells. de Souza I1, Tomaz MA1, Monteiro LKS2, Guedes CB2, Silva MM2, Porchia BFMM2, Latancia MT2, Lazarini M3, Gomes LR3, Rocha CRR1. 1Department of Clinical and Experimental Oncology, Federal University of São Paulo (UNIFESP), SP, Brazil, 2Institute of Biomedical Science, University of São Paulo (USP), SP, Brazil, 3Department of Pharmaceutical Sciences, Federal University of São Paulo (UNIFESP), SP, Brazil, 4Cell Cycle Laboratory, Butantan Institute, SP, Brazil.
PS41 Mutagenic and Antimutagenic Assessment of Ellagitannin Eugeniflorin D2 in Bacteria and Mice. Barbosa BFF, Mata DS, Silva LS, Paiva FEA, Santos SC, Chen LC. Federal University of Goiás, Goiânia, GO, Brazil.

PS42 The Establishment of Whole-genome Sequencing-based Mutation Analyses Method Using Human Cells. Hirose T¹, Matsumura S¹, Ikeda N¹, Yamane M¹. ¹R&D, Safety Science Research, Kao Corporation, Japan.

PS43 3Rs-Aligned Strategy for Demonstrating Proficiency of the Rodent Micronucleus Assay in Peripheral Blood with Organ Specific Assessment of DNA Damage using the Alkaline Comet Assay. Roberts DJ², Reeder A¹, Aljamal B¹, Anderson K¹, Benthin M², Dubnicka T², Janik Q², Kuliczkowski L², Miedema A², Nicholas N², Parrish C², Qamruddin S¹, Schillaci T², Stankowski Jr LF¹, Warner K², Wells M¹. ¹Charles River, Skokie IL United States, ²Charles River, Mattawan MI, United States.

PS44 Deuteration Increases the Sensitivity of Escherichia Coli to UVC DNA Damaging Effect. Smirnova SV, Shapiro TN, Abilev SK. Vavilov Institute of General Genetics Russian, Academy of Sciences, Gubkina str. 3, Moscow, Russia.

PS45 Use of the TGx-DDI Transcriptomic Biomarker for Genotoxicity Assessment of Data-poor Chemicals. Fortin AM¹, Williams A², Meier M², Long AS³, Cox J³, Hanna J⁵, Grundy J⁶, Yauk C¹, White P¹². ¹Department of Biology, University of Ottawa, Ottawa, Canada, ²Environmental Health Science and Research Bureau, Health Canada, Ottawa, Canada, ³Department of Pharmacology and Toxicology, University of Toronto, Toronto, Canada, ⁴Bureau of Gastroenterology, Infection and Viral Diseases, Health Canada, Ottawa, Canada, ⁵Existing Substances and Risk Assessment Bureau, Health Canada, Ottawa, Canada, ⁶New Substances Assessment and Control Bureau, Health Canada, Ottawa.

PS46 Evaluation of Pyrrolizidine Alkaloid-induced Genotoxicity Using Metabolically Competent TK6 Cell Lines. Li X¹, He X², Chen S³, Guo X¹, Bryant MS³, Guo L³, Manjanatha MG¹, Zhou T¹, Witt KL⁵, Mei N¹. ¹Division of Genetic and Molecular Toxicology, ²Office of Scientific Coordination, ³Division of Biochemical Toxicology, National Center for Toxicological Research, U.S. Food and Drug Administration, Jefferson, AR, United States, ⁴Center for Veterinary Medicine, U.S. Food and Drug Administration, Rockville, MD, United States. ⁵Division of the National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC, United States.

Genotoxicity Risk Assessment and Public Health

PS47 Biological Monitoring of Residents Exposed to Environmental Occupation Using the Buccal Micronucleus Approach. Tselousova OS, Ovsyannikova LB. Bashkir State Medical University of the Ministry of Health, Russia.

PS48 Cancer Risk Assessment for Medical Devices: Shifting Paradigms by Integrating Diverse Datasets. Fischer CG, Elespuru RK. US FDA/CDRH, Silver Spring, MD, United States.

PS49 The Effect of DNA Repair Knock-out on Sensitivity to Environmental Mutagens: Comparative Analyses of In Vitro Concentration-Response Data. Gallant LR¹, Chen G², Lambert IB³, Bell M¹, Long AS¹, Yauk CL¹, and White PA¹⁵. ¹Department of Biology, University of Ottawa, Ottawa, Canada, ²RIVM (National Institute for Public Health and the Environment), Bilthoven, The Netherlands, ³Department of Biology, Carleton University, Ottawa, Canada, ⁴Department of Pharmacology & Toxicology, University of Toronto, Toronto, Canada, ⁵Environmental Health Science and Research Bureau, Health Canada, Ottawa, Canada.
Block 3
Genotoxicity Risk Assessment and Public Health (cont.)

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PS52
Usefulness of Historic Ames Test Data – Sensitivity of the Ames Test at 10% the Maximum OECD TG471 Guideline Dose and of the Two-Strain Ames, in the Context of a 2-test Battery. Pfuhler S1, Holland D¹, Allemang A², Global Product Stewardship, Procter & Gamble Services NV/SA, 1853 Strombeek-Bever, Belgium, Global Product Stewardship, Procter & Gamble Co, Mason, OH, United States.

PS53
Molecular and High-Content Analysis Suggests Parthanatos Cell Death as Mechanism for the Antitumoral Effects Exerted by Brachydin A Flavonoid in 3D Prostate (DU145) Tumor Spheroids. Ribeiro DL¹, Tuttis K⁰, Oliveira LCB², Serpeloni JM², Gomes INF³, Lengert AVH⁴, Reis RM³, Rocha CO⁴, Antunes LMG⁵, Cólus IMS⁵. Ribeirão Preto Medical School – University of São Paulo (FMERP/USP), Ribeirão Preto, SP, Brazil, State University of Londrina (UEL), Londrina, PR, Brazil, Barretos Cancer Hospital, Barretos, SP, Brazil, Federal University of Maranhão, São Luís, MA, Brazil, School of Pharmaceutical Sciences of Ribeirão Preto - University of São Paulo (FCFRP/USP), Ribeirão Preto, São Paulo, Brazil.

PS54
In Vivo Genotoxicity Assessment of Multi-Walled Carbon Nanotubes Using the Optimized Lung Micronucleus Assay. Horiba K², Hojo M², Ando T², Yokota S³, Taquahashi Y³, Kobayashi N³, Takasawa H², Hamada S², Sugiyama K³, Honma M³, Division of Genetics and Mutagenesis, National Institute of Health Sciences, Kanagawa, Japan, Department of Pharmaceutical and Environmental Sciences, Tokyo Metropolitan Institute of Public Health, Tokyo, Japan, Division of Cellular and Molecular Toxicology, National Institute of Health Sciences, Kanagawa, Japan, Division of Environmental Chemistry, National Institute of Health Sciences, Kanagawa, Japan, Division of General Affairs, National Institute of Health Sciences, Kanagawa, Japan.

PS55
Quantitative Assessment of DNA Damage Dose-responses Between 2D and 3D HepaRG Models Using the High-throughput CometChip Assay. Seo JE¹, He X², Guo X¹. Division of Genetic and Molecular Toxicology, Office of Scientific Coordination, National Center for Toxicological Research, Jefferson, AR, United States.

PS56

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PS58
Repeated Exposure to Eucalyptus Smoke Alters Pulmonary Gene Expression in Male Long-Evans Rats. Nguyen HH¹, Fisher A², Dye JA², Gilmour IM², Miller CN², Ren H², Schladweiler MC², Smith MR³, Gowdy KM³, Dunigan-Russell K³, Oak Ridge Institute for Science and Education, U.S. Environmental Protection Agency, RTP, NC, United States, Cardiopulmonary and Immunotoxicology Branch, Public Health and Integrated Toxicology Division, Center for Public Health and Environmental Assessment, U.S. Environmental Protection Agency, RTP, NC, United States, Division of Pulmonary, Critical Care and Sleep Medicine, Ohio State University Wexner Medical Center, Columbus, OH, United States.
The Botanical Safety Consortium's Strategy for Developing a Toolkit of Assays for Robust Genotoxicity Assessments of Botanicals. Witt KL1, Chen G2, Cheairs T3, Eisenbrand G4, MacGregor JT5, Mei N6, Rietjens IMCM7, Smith-Roe SL1, Stopper H8, Thakkar Y9, van Benthem J10, Xi D11, Zeiger E12, Pfuhler S13. 1 NIEHS/Division of the National Toxicology Program, Research Triangle Park, NC, United States, 2 Health Canada, Ottawa, Ontario, Canada, 3 New York Medical College, Valhalla, NY, United States, 4 University of Kaiserslautern, Kaiserslautern, Germany, 5 Toxicology Consulting Services, Bonita Springs, FL, United States, 6 FDA/National Center for Toxicological Research, Jefferson, AR, United States, 7 Wageningen University, Wageningen, Netherlands, 8 University of Wurzburg, Wurzburg, Germany, 9 Research Institute for Fragrance Materials, Woodcliff Lake, NJ, United States, 10 National Institute for Public Health and the Environment, Bilthoven, Netherlands, 11 NIH/National Cancer Institute, Bethesda, MD, United States, 12 Errol Zeiger Consulting, Chapel Hill, NC, United States, 13 The Proctor & Gamble Company, Mason, OH, United States.

Exploring Potential Genotoxic Effects of Nanocelluloses Versus Multi-walled Carbon Nanotubes in Co-cultures of Human Lung Epithelial Cells and Monocyte-derived Macrophages. Pinto F1, Ventura C1,2, Teixeira S1, Lourenço AF1, Fernandes SN1, da Rosa RR1, Godinho MH1, Ferreira PJT5, Louro H1,2, Silva MJ1,2. 1 Instituto Nacional de Saúde Doutor Ricardo Jorge, Department of Human Genetics, Lisbon, Portugal. 2 ToxOmics - Centre for Toxicogenomics and Human Health, NOVA Medical School, NOVA University of Lisbon, Portugal. 3 RAIZ – Forest and Paper Research Institute, Eixo, Portugal. 4 CENIMAT/IN3N, Departamento de Ciência dos Materiais, Faculdade de Ciências e Tecnologia, FCT, Universidade NOVA de Lisboa, Caparica, Portugal. 5 University of Coimbra, CIEPQPF, Department of Chemical Engineering, Coimbra, Portugal.

Unclassified Chromosomal Abnormalities as an Indicator of Genomic Damage and Instability in Survivors of Hodgkin’s Lymphoma. Ramos S1, Molina B1, Frias S1,2. 1 Laboratorio de Citogenética del Instituto Nacional de Pediatría, 2 Departamento de Medicina Genómica y Toxicología Ambiental, Instituto de Investigaciones Biomédicas, UNAM, Mexico.

Intrinsic Base Substitution Patterns in Diverse Species Reveal Links to Cancer and Metabolism. Chan, K, Gelova, SP, Doherty KN, Alasmar S. University of Ottawa, Ottawa, ON, Canada.

High-throughput Assessment of Increased Chemical Toxicity Due to Hepatic Steatosis. Tucker NN1, Nelson GM2, Harrill J3, Chorley B2. 1 Oak Ridge Institute for Science Education, Oak Ridge TN, United States, 2 U.S. E.P.A. Center for Computational Toxicology and Exposure, Durham, NC, United States.

Whole-genome Duplex Sequencing Reveals Landscape of Antibiotic-Induced Mutations in Escherichia coli. Fitzgerald DM1, Norgaard Z2, Lo FY2, Li T2, Valentine, CC3, Salk JJ2, Zhai Y1, Rosenberg SM1. 1 Baylor College of Medicine, Houston, TX, United States, 2 TwinStrand Biosciences, Seattle, WA, United States.

Compartment-Specific Transcriptomic Responses in Mouse Small Intestine Following Oral Exposure to Hexavalent Chromium. Chappell GA1, Wolf J2, Thompson CT3. 1 ToxStrategies, Inc, Asheville, NC, United States, 2 EPL, Sterling, VA, United States, 3 ToxStrategies, Inc, Katy, TX, United States.
High-throughput Transcriptomic Analysis of Human Hepatocytes Exposed to Per- and Polyfluoroalkyl Substances for Hazard and Relative Potency Assessment. Rowan-Carroll A1, Reardon A2, Leingartner K1, Williams A1, Aranda-Rodriguez R1, Kuo B1, Bourdon-Lacombe J3, Moffat I3, Carrier R3, Nong A1, Lorusso L4, Ferguson S5, Atlas E1, Yauk C6.1Environmental Health Science and Research Bureau, Healthy Environments and Consumer Safety Branch, Health Canada. 2Existing Substances and Risk Assessment Bureau, Healthy Environments and Consumer Safety Branch, Health Canada. 3Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada. 4Chemicals and Environmental Health Management Bureau, Healthy Environments and Consumer Safety Branch, Health Canada. 5US National Institute of Environmental Health Sciences. 6Department of Biology, University of Ottawa, Ottawa, ON, Canada.

High-Throughput Transcriptomics in Toxicology Testing: Evaluation of the “Omics Data Analysis Frameworks for Regulatory application” (R-ODAF). Meier MJ1, Verheijen M2, Caiment F2, Yauk CL1. 1Environmental Health Science and Research Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, ON, Canada, 2Department of Toxicogenomics, School of Oncology and Developmental Biology (GROW), Maastricht University, Maastricht, The Netherlands.

In Vivo Mutagenesis

Temporal Analyses of Mutant Frequencies in Tubule Germ Cells of MutaMouse Animals Exposed to Benzo(a)pyrene or N-ethyl-N-nitrosourea Support the Use of the 28+28 Day Study Design for Assessing Germ Cell Mutagenicity. Zhou G1, O’Brien JM2, Williams A1, Yauk CL1,3, Douglas GR1 and Marchetti F1. 1Health Science and Research Bureau, Health Canada, 2Ecotoxicology and Wildlife Health Division, Environmental and Climate Change Canada, 3Department of Biology, University of Ottawa, Ottawa, ON, Canada.

Duplex Sequencing™ Reveals Increases in Mutation Frequencies and C>T Transitions in the Bone Marrow of MutaMouse Males Exposed to Procarbazine. Dodge, AE1, LeBlanc D2, Williams A1,2 Van P,3 Higgins J3, Lo FY,3 Yaplee J3, Valentine CC3, Salk JJ,3 Yauk CL,1,2 Marchetti F2,4. 1Department of Biology, University of Ottawa, Ottawa, ON, Canada. 2Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada. 3Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada. 4TwinStrand Biosciences, Inc., Seattle, WA, United States.

Duplex Sequencing Reveals an Attenuated Mutation Frequency Increase in the Germ Cells of MutaMouse Males Exposed to N-ethyl-N-nitrosourea and Benzo[a]pyrene Relative to the TGR lacZ Assay. LeBlanc D1, Meier M1, Williams A1, Buick J1, Higgins J2, Yaplee J2, Van P1, Lo FY2, Valentine CC2, Salk J1,2, Yauk C3, Marchetti F1. 1Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada. 2TwinStrand Biosciences, Inc., Seattle, WA, United States. 3Department of Biology, University of Ottawa, Ottawa, ON, Canada.

Mapping of DNA Damage in Prostate Cancer-related Genes in Vivo. Marin C1, Ceyhan Y2, Agoulnik I1, Liu Y1. 1Department of Chemistry and Biochemistry, Florida International University, 2Department of Human and Molecular Genetics, Florida International University, Miami, FL, United States.
Germ Cell and Heritable Effects

PS74
Scrutinizing Variants of Uncertain Significance in the PMS2 Gene. D’Arcy BM1,2, Arrington JF1,2, Weissman J1, Yang Z3, Blount J4, Prakash A1,2. 1Mitchell Cancer Institute, University of South Alabama Health, Mobile, AL, United States. 2University of South Alabama, Department of Biochemistry and Molecular Biology, Mobile, AL, United States. 3University of Alabama at Birmingham, Department of Biochemistry and Molecular Genetics, Birmingham, AL, United States. 4Circulogene Theranostics, Birmingham, AL, United States.

PS75
Assessment of Variability in Human DRC (DNA Repair Capacity) to Evaluate the Default Uncertainty Factor (UF) for Inter-individual Sensitivity to Environmental Mutagens. Bell MA1, Lambert IB2, Cakmak S3, Chen G4, Gallant LR1, White PA1, 3. 1Department of Biology, University of Ottawa, Ottawa, Canada, 2Department of Biology, Carleton University, Ottawa, Canada, 3Environmental Health Science and Research Bureau, Health Canada, Ottawa, Canada, 4RIVM (National Institute for Public Health and the Environment), Bilthoven, The Netherlands.

PS76
13th International Conference on Environmental Mutagens and 53rd Annual Meeting of the Environmental Mutagenesis and Genomics Society

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